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Containing an Electric Vehicle Supplement

VOL. VIII. NO. 1 $1.00 A YEAR

AUGUST, 1910

SELLING ELECTRICITY

The Magazine of Electrical Progress

270
233

It's up to every Central Station man to recommend the

New Edison Storage Battery

for electric vehicle equipment

THIS is the Battery on which Thomas A. Edison worked nine years, and of which he said, "It will be ready when it is right." It is ready *now*.

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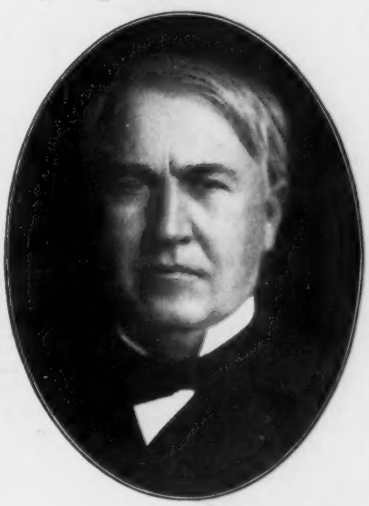

Edison Storage Battery Co.

123 Lakeside Avenue ORANGE, N. J.

TRADE MARK

Thomas A Edison

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TK1 .E363

On Hot Tuesday Mornings

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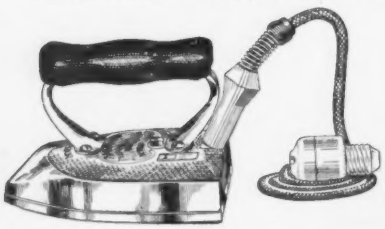

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Thus an electric iron of either higher or lower wattage than "American" irons may consume more current and time to do a given piece of work. How? Write us.

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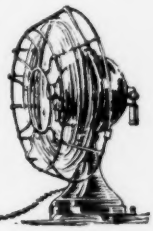

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A Portable Vacuum Cleaning Machine combining efficiency, practicability and economy. Can be attached to any electric light socket.

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Valentine Electric Sign Co.

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Holophane will help you get business and will help the merchant to INCREASE his business. Ask for details of this and OTHER Holophane installations.

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Sales Department:

Newark, Ohio

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THE CLOSE RELATIONSHIP

between the

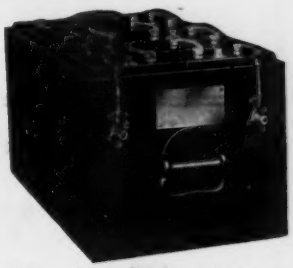
Central Station, Electric Vehicle and "Exide" Battery

THE energetic Central Station is looking for more business. The Electric Vehicle offers the Central Station the greatest opportunity for increased income—an income that is both large and profitable, since the charging of Electric Vehicles is usually an "off peak" load.

The increased sales of "Electrics" is dependent not only upon the efforts put forth to popularize their use, but also upon the entire satisfaction to users of the service from "Electrics."

Reliable Electric Vehicle service, to a very great degree, is assured from the use of an absolutely dependable storage battery—one that has an established record of satisfactory service.

The "Exide" battery is manufactured by the oldest and largest storage battery manufacturer representing over 22 years of battery experience. It has proven so superior that over 90% of all Electric Vehicles manufactured are equipped with "Exide" batteries, and 18 leading Electric Vehicle manufacturers have adopted it as standard equipment.



The "Exide" Battery

In order to assure good battery results and prompt service to users of the "Exide" battery, this Company has established 5 "Exide" Depots and 715 "Exide" Distributors, scattered throughout the country, from whom batteries, battery parts or battery information can be obtained. It also maintains a corps of travelving "Exide" battery experts, who, without charge, call upon users of the "Exide" battery to aid them in securing perfectly satisfactory service from batteries.

This Company, from years of experience, is familiar with the Electric Vehicle proposition from start to finish, and can aid Central Stations in developing this business.

Write the nearest Sales Office for copies of our books "Undeveloped Central Station Business," and "How to Get That Undeveloped Central Station Business." Let us aid you in establishing the use, or increased use, of "Electrics" in your town.

THE ELECTRIC STORAGE BATTERY CO.

1888 PHILADELPHIA 1910

New York	Chicago	Cleveland	Denver	San Francisco
Boston	St. Louis	Atlanta	Detroit	Toronto

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G-M Lamp
(Patent applied for)

SUCCESS

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The G-M Lamp

A Really Good Library Table Reading Lamp

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NEWARK, N. J.

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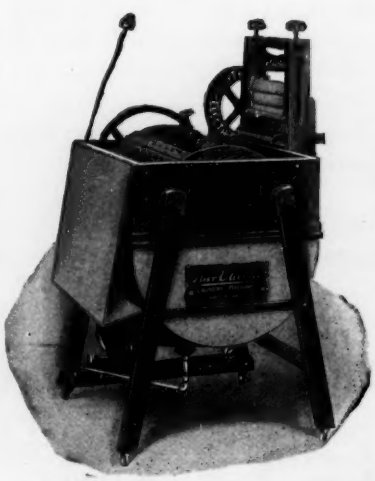
Electric Home Laundry Machine

are beginning to feel dragged out and to realize that saving health and strength is economy.

Talk **THOR** to them right now—non-consumers as well as present customers. We sell Thor machines to unwired houses—Why can't you?



Hurley Machine Company

CHICAGO	NEW YORK	SEATTLE
Monroe and Clinton Sts.	Flatiron Building	421 Union St.

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SELLING ELECTRICITY

VOLUME VIII NUMBER 1

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PROFIT FOR YOU
IN THE SUPPLEMENT

THE supplement we give you with this month's SELLING ELECTRICITY is a new departure in trade journalism. Instead of telling why **you** should promote the sale of Electric Vehicles, it gives you popular reasons why the public should buy them. We give you these reasons and arguments in such form that you can pass them along to your public and to your newspapers, thus insuring wide publicity to the Electric Vehicle itself and not to the machine of any particular manufacturer.

Obviously such arguments are stronger when independent. Your newspapers, for instance, may readily be induced to republish one or more of the articles in this supplement, if you bring it to their attention in the right way. Or if you have a doctor who would buy a car if he were sure of one of adequate mileage, show him the article by Mr. Rae. The "Combination Garage" article should interest **and influence** every private garage owner in your city. The same statements, if made by you, would probably be discounted but in type they pass at face value. This is a principle of salesmanship.

See that everyone who can possibly be interested in an Electric Vehicle, gets one of these supplements. It will come to the prospect as a little sixteen-page magazine and he will say, "Well! well! Here's another new magazine." He will read it as unprejudiced information and it puts the Electric Vehicle proposition before him in the way you wish.

We are ready to furnish these extra Supplements to you in such quantity as you say. The price will be in accordance with the quantity—5 cents each for 100; 3½ cents each for additional copies up to 500; 2½ cents each for all above 500.

Remember who your Electric Vehicle prospects are! Every merchant who has a delivery wagon, every man who runs a local truck, every doctor, contractor, or architect, every family who can afford an electric runabout or coupe for the use of the ladies. How many of them are there in your town?

Send them this Supplement.

Selling Electricity, 74 Cortlandt Street, New York City

SELLING ELECTRICITY

Edited by FRANK B. RAE, Jr. EARL E. WHITEHORNE, Managing Editor

The Family Car of Today

An Article Based on an Interview with Edison

By William C. Andrews

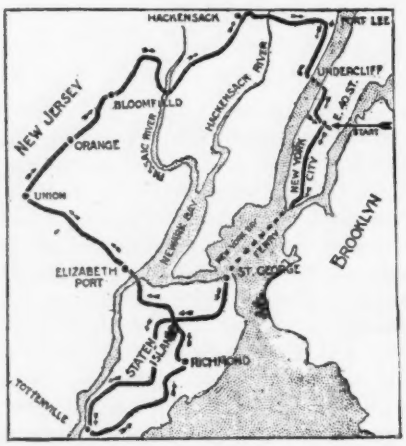
All types of automobiles are naturally divided into two general classes, commercial and pleasure. The first include delivery wagons, heavy trucks, omnibuses and other vehicles to carry freight or passengers, where speed is necessarily low on account of traffic conditions. Mechanical traction of any kind is in general cheaper than horse flesh, and in this class, electric power is a direct and successful competitor in the majority of cases. The pleasure vehicles include victorias, phaetons, runabouts, coupes, landaulets, broughams and touring cars. As the word "pleasure" in automobile parlance is measured in miles per minute the touring car is perhaps the only one in the list that can be classed as a "pleasure vehicle" and the other types should be designated as "utility vehicles." With the touring car, the electric automobile has no more in common than has a Broadway surface car with the 20th Century Limited or the elevator of the Singer Tower with a Wright biplane. But it is solely on account of invidious comparisons with the touring car that the electrics have been very much misrepresented and maligned.

The public, however, has at last awakened to the true value of the electric "utility" vehicle and the remarkable increase in the demand has quickened the inventive genius of the manufacturers to perfect this unappreciated pioneer—for the electric and steam automobiles were the first practical ones in use in this country. It may be remembered that the electrics first attracted favorable attention and served as a basis for predictions of the future but the importation of French cars with the then phenominal speed of 35 to 40 miles per hour left the electrics with the proverbial amount of honor to home prophets. The desire of the average citizen to annihilate space gave an impetus to the development of the touring car that temporarily kept the electric in the shade although it has steadily held its own in its specific field and shows today even greater improvements over the types of five years ago than are found in its speedier cousins.

The picture shown on page 7 of the Supplement is a testimonial to the *reason* for the electric pleasure vehicle. It typifies the demand for something more in automobiles than express train speed at luxurious prices. The "passing of the horse" included the "family horse" with nothing left to take its place but the electric, and a thousand or more vehicles like those seen in the picture are used daily in Cleveland for shopping, calling, theatre going, driving in the parks and by mere man in his ordinary vocations and avocations. It is reported that fully 90 per cent of the owners of high

priced gasoline cars in that city have one or more auxiliary electrics for general family use about town.

The "limitations" of the electric vehicle as to speed and distance are rated at their actual value by comparison with the requirements of its true service. A potential speed of a mile a minute is useless in a city street and prohibits the driver being anything but an expert chauffeur. The capacity of the modern battery is ample for emergencies and *much greater than the average daily run.**



One of the Test Runs made with the Edison Battery

As the battery is undeniably heavy it affects the hill climbing qualities of the electric vehicle but there are few localities where by proper selection of car and battery satisfactory results cannot be secured.

Speed and distance are of course very closely related and the capacity for either can be increased at the expense of the other, or by increasing the capacity of the battery for a given weight. The increase in mileage per charge varies almost directly with the capacity of the battery, that is, if the battery capacity is doubled for the same weight, the car will go twice as far on one charge, other conditions remaining the same. To double the speed, however, would require very much more than twice the battery capacity. Improvements in battery design and the perfection of lighter batteries have, therefore, been used to extend the mileage rather than increase the speed.

*See article by Mr. Rae in this issue.

The possibilities of the new Edison storage battery, about which so much has appeared in the popular magazines, are now being thoroughly tried as regards speed and distance. A great number of service runs have been made on the Long Island and New Jersey roads with different types of cars and careful records kept of the results. The performances so far indicate an excess mileage capacity of from 50 to 75 per cent above the normal daily use, giving an opportunity to either materially increase the speed or allow a practically fool-proof factor of safety.

The Edison battery is made with iron and nickel elements instead of lead and contains an alkaline liquid or electrolyte. It is a radical departure from ordinary practice in battery manufacture and its development has attracted widespread interest. The records of some of the recent runs show that it is a puissant competitor

Table of Service Runs of Family Cars With Edison Batteries

Date	Route No.	Length of Route Measured on Maps	Actual Miles Made Over Route (Odometer Reading)	Total Miles Made on Single Charge	Excess Mileage	Average Speed Miles Per Hour	Start	Finish	Actual Running Time
July							A. M.	P. M.	H. M.
21	4A	76	75 98	115 30	39 32	13 19	7 28	3 28	5 48
21	1A	84	84 04	102 10	18 06	12 07	7 27	5 05	6 58
23	2A	83	87 78	139 49	51 71	13 71	7 16	5 34	6 24
23	3A	80	83 23	122 32	39 09	12 38	7 23	5 56	6 31
26	18A	90	98 45	107 85	9 4	12 84	7 21	5 56	7 40
26	6A	90	98 08	113 13	15 05	12 47	7 30	6 05	7 52
28	17A	85	84 03	126 61	41 58	12 23	7 12	2 51	6 03
28	15A	84	86 76	110 21	23 45	12 92	7 18	4 05	6 43

in the storage battery field and that *the electric pleasure vehicle is actually better than the required service demands.*

The accompanying table gives data on some recent trips, using the Edison battery. The different routes practically cover the country around New York City and include all kinds of road and grade conditions. A map

is shown of a typical route, No. 1 A, which was run over on July 21st. Of course no comparison can be made of the different makes of cars used as the conditions vary in every case but the results prove that the speed, power and endurance are there no matter what reasonable demands are made. After the cars had finished the run, they were kept going until the battery was discharged so as to give the excess mileage still left in the cells. Each car was equipped with 40 Type A-6 Edison cells.

The electric pleasure vehicle is not a competitor of the touring car but is primarily a convenience—the most convenient convenience of modern life. It is as convenient as the bicycle without the labor or exposure and is equally well suited to all without regard to age, sex or experience. Like a horse, it must have its proper diet and not be overworked but unlike a horse it will require no further attention to go on working month in and month out, through hot weather and cold, wind, rain, snow and ice, up hill and down, in city or country. It can be kept in a private garage more easily than a gasoline car or it can be kept in a public garage.

In a word, the electric automobile has proved again and again that for its special work it is superior to any other form of vehicle, gasoline or horse, in safety, reliability, convenience and economy. It is the family car of today.

Backing Up

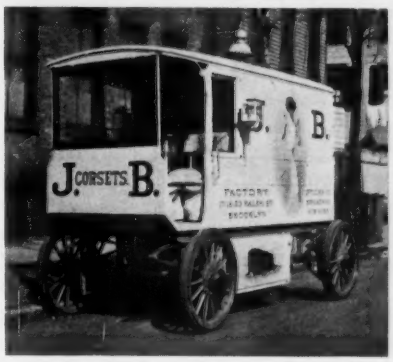
An automobile salesman was walking down a street the other day when he came to a place where building was going on. A truckman was backing up a load of building materials. The auto salesman and his friend stopped to look. It took the driver, fifteen minutes to work the horse and wagon back where he wanted it to be.

"See that," said the salesman, "and then compare it with a motor. The motor truck is a time saver, and it's on that basis that we are selling a lot of them."

CONDEMNING THE INNOCENT

This electric vehicle was recovered from the scrap pile after having been abandoned by a large New York firm, which had endeavored to test the merits of the electric vehicle with the idea of displacing its horse equipment. This firm had purchased a number of these vehicles and operated them for a period of about two years, when they claimed that the electric truck was not practicable and would not do their work, and restored their horses to service. The machines were run on the scrap pile, advertised, and sold for almost any offer.

The machine shown below became the property of one of the customers



Rescued from the Scrap Pile

of the Edison Electric Illuminating Company of Brooklyn and an examination, after it had been towed to its new home, showed that it had received very severe usage and little care and attention, with the result that parts were badly worn, due largely to lack of lubrication. Its springs were badly sagged and out of alignment, due to abnormally heavy loads; its motor was floating in oil, with the commutator badly burned and blackened; it had no battery, that part having properly been disposed of for junk lead. However, the condition of the battery compartment told the tale of the abuse the battery had received, and no attempt had been made to keep the iron work and supporting frame free from

the attacks of acid. In fact, acid was everywhere and its effect was marked.

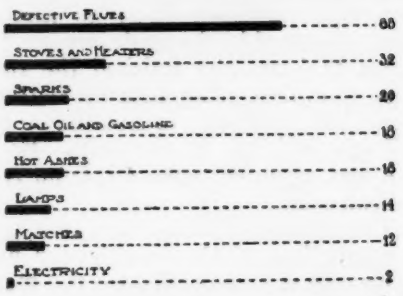
After examination this machine was sent to the paint shop to be cleaned and painted, and while this was in process, the motor was cleaned up, and a new battery installed, springs straightened up and all lost motion in working parts corrected, after which it was ready for service. This was during the latter part of December, 1909, and the machine was then placed in service. It has displaced two horse drawn vehicles and one driver, and does all the firm's work in less time than was required with horse equipment.

This machine in its new work has averaged twenty miles each working day since installed in service and has consumed about 300 kwh. per month. Its new owners are more than pleased with it, and to repeat the words of one of the members of the firm, "We would not dispose of it for many times what it has cost us. It does our work well and serves as a fine advertising medium. It's the pride of the firm. We cannot help but believe that if this machine had received the same attention from its first owners that it is receiving now, it would have been doing their work today instead of that of the Joseph Beckel Company."

Louisville Fire Figures

An interesting item appears in a recent issue of "*Chained Lighting*," the house organ of the Louisville Company, giving the following data on local fires:

The comparison of the causes of fires in Louisville from January 1 to June 8, 1910, gives the astounding fact that while but two were caused by electricity, both being of a minor nature, two hundred and two were caused by overturning and exploding lamps, defective flues, stoves, heaters, sparks, hot ashes, coal oil, gasoline and matches, thus showing the safety of electricity to be equal to its convenience. The classification of the causes of the fires this year taken from the records of the Louisville Fire Department (false alarms, incendiary and unknown origins being eliminated) shows:



Promoting Electric Vehicles in Denver

Dr. M. Ekstromer of Cambridge, Mass., has been employed by the Denver Gas and Electric Company and is at present engaged in visiting all the automobile dealers and garage owners in Denver, tending his services to assist their salesmen in selling electric vehicles. He is also following up the many customers of the Denver Company who have electrics and their own private garages, and finds that there are a great many opportunities to be of real service to the consumer and both create favorable sentiment and promote increased consumption.

The Denver Company does not handle the vehicles themselves, but devotes all efforts toward the increase of public interest in the subject.

Electricity For Water Works

The apparatus of the Montgomery, Ala. water plant will shortly be driven entirely by electric power. At the last session of the city council a resolution was offered authorizing the mayor to make a contract with the Montgomery Light and Water Power Company for this purpose.

Leave Rochester For Toronto.

Mr. John N. French and Mr. Aldis Hibner, late of the Rochester Railway and Light Company, have joined the power department of the Toronto Electric Light Company, Limited.

What Mileage Do You Really Want?

A Plain Talk About the Travel Requirements of Electric Vehicles

By Frank B. Rae, E. E.

In considering the mileage radius of the electric car, it should be repeated at the outset that the electric vehicle is *not* designed for touring. An electric car, whether designed for pleasure or business uses, is intended entirely for operation in city and town streets or upon suburban roads for comparatively short runs. Its best friends are the first to admit — nay, to assert — this fundamental truth. The electric vehicle takes the place of the family carriage for calling, shopping and drives in the park; it serves the physician in making his daily visits, or the business man to and from his store or office and in his frequent trips about town, and it is the cheapest and best means for the delivery of goods. In short, it does precisely the work formerly done by the horse-drawn vehicle, doing it, however, with more speed, at less cost of operation and having a capacity for greater daily travel.

The matter of mileage, therefore, should be considered from the standpoint of utility of the electric car within this defined sphere of usefulness and should not be compared with the gasoline touring car any more than a touring car should be compared with a steam railway. If we concede this, then the first points to consider in deciding what mileage we actually require, are the probable average daily duty of the car in the particular city or town in which it is to operate, the average condition or quality of the roads and the grades which the car is to encounter.

Let us get down to cold figures in estimating the duty of a pleasure car. The average speed of any vehicle in the city streets, considering the delay of traffic, will not exceed twelve miles per hour, and it is hardly probable that a shopping or calling trip would ever exceed two hours of actual riding, or, say, twenty-five miles of car travel, even when the distance to and from the shopping district is as great as ten miles. Now, in addition to this possible daily use of the car, let us add a three-mile trip to school with the children, a seven-mile run to the club meeting, an evening ride to the park or about the residence part of the town which takes, say, three hours of actual driving. This makes a total day's traveling of seventy miles as probably the greatest distance a pleasure vehicle will be called upon to travel in any day, and to do this mileage, the car must be in constant service not less than six solid hours.

In the case of the business or professional man, an average daily use of his runabout can also be approximated. He lives, say, five or six miles from his place of business, so that the trip in and back makes twelve miles. If he drives home for lunch another twelve miles is covered and to this must be added his trips about town. While this last is a difficult item to estimate closely, it seems fair to assume that two hours of actual driving out of each business day would be ample, and since he will probably drive as fast as possible, this adds thirty miles, making a total of fifty-four miles to which at least four hours have been devoted. The car may then be called upon to make an evening trip to the theatre or to the park, say another fifteen miles, so that altogether the car has been called upon to cover approximately seventy miles. The physician, contractor, architect or city salesman will hardly require this mileage, the calling of such men seldom amounting to over six hours per day, of which not above two-thirds is spent in actual travel, so if we allow four hours of riding, the requirements are from fifty to sixty miles per day.

It must be evident from these figures that very great mileage, therefore, is

not required in the daily use of the electric car and where a capacity of from 60 to 75 miles is regularly secured, every reasonable requirement as to distance is met. Starting then with what appears to be a safe assumption that the maximum daily mileage of an electric car is 75 miles, what capacity must the car have to reliably meet this operating requirement? Right here we encounter all of the factors governing mileage of an electric vehicle, namely: the weight of the car and load; the friction of the car, including tires; the speed; character of roadway; the number of stops per mile; the number of slow-downs for traffic, requiring renewed acceleration; effect of wind, and, finally, the extra energy necessary to lift the car up the grades.

It is unfortunate that most statements regarding the mileage radius of the electric car have been made usually with few if any of the qualifying conditions mentioned, and while most manufacturers' claims for mileage are true, excessive mileage on one charge of the battery can only be made when the car is running on a level road of the best kind, at the speed at which the motor works at the best efficiency, and without making any stops — in other words, when operating under ideal conditions not in any way approximating the conditions of daily practical operation. Some of these "stunt" runs, which have been widely advertised by those having little understanding of true conditions, have done more harm than good.

They cannot be duplicated in the day-to-day work of the car, and, as a matter of fact, no one owning an electric wants to or needs to make one hundred and fifty or more miles per charge, any more than the average owner of a gasoline car wants to travel a mile in thirty seconds. Why not, therefore, get down to something rational and meet the requirements of the user?

What folks usually need is a car that will run every day an average, say, of 65 miles over ordinary city streets in which the pavements vary from Belgian block to asphalt. Traffic conditions force a stop or a slow-down every block or two, and may, altogether, be taken as equivalent to an average of 3 stops per mile.

Let us assume that we have decided upon pneumatic tires: that 65 miles is travelled, that the weight of the car and load is 2600 lbs, or 1.3 tons. Our general assumption as to stops per mile would call for an acceleration of the car from rest to speed of twelve miles per hour, 195 to 200 times in the course of a day's travel.

Now, the operation of an automobile by electric motor presents the same traction problem that the electrically propelled street car or other track vehicle offers, excepting that the road friction varies more because of the differing character of the road upon which it must travel. With an electric street car on a clean rail, the total resistance of bearings, rail, motor, friction and air inclusive, is from eight to ten pounds per ton up to ten miles per hour and from sixteen to twenty pounds per ton from ten to twenty-five miles per hour; but for the purposes of ordinary calculation, this total resistance to traction is taken as twenty pounds per ton. With the electric road vehicle, however, the character of the road and kind of tires make so wide a variation that both must be considered in determining total friction. On level macadam, the writer has found the friction of a car with solid tires to vary from twenty-four pounds per ton at five miles per hour to forty-four pounds per ton at fifteen miles per hour. On hard dry asphalt resistance for the same car at twelve miles per hour is about 40 per cent less than on macadam, or about twenty-three pounds per ton. When loose gravel or sand is encountered the resistance mounts up to from 125 to 300 pounds per ton and even higher. Pneumatic tires will decrease the road resistance materially, averaging probably twenty-five per cent less than solid rubber, but this is again affected by the resil-

liency of the tire and changes also for various makes of pneumatic tires.

Now let us go into a few simple technicalities. Assuming that with pneumatic tires the total resistance to traction at twelve miles per hour is an average of thirty pounds per ton (in which allowance is made for variation in roadway and which figure also contemplates that a considerably higher rate of speed is occasionally required) then, for the propulsion of the car on a level road, there is required 1.56 horse power at the motor. With a battery of forty cells this means a current of input of 14.6 amperes. If this simple condition of running at twelve miles per hour over a level road without stops could be maintained throughout the day's run and if the car is equipped with a battery of the usual capacity of 130 ampere-hours, then it follows that the mileage of the car on one charge of the battery would be $\frac{130}{14.6}$x12=107 miles. But because the traffic conditions require numerous stops, the very important factor of acceleration calling for extra energy necessary to lift the load from rest up to twelve miles per hour must be considered. Ordinarily the acceleration each time the car must start and get to speed is at the uniform rate of one mile per hour per second; in other words, it will reach a speed of twelve miles per hour in twelve seconds. In such case, the distance that the car must travel in reaching this speed is 105 feet, and if such acceleration takes place 200 times, the distance travelled in acceleration is, therefore, approximately four miles. Now, the traction effort for this rate of acceleration is 121.23 pounds per ton or 158 pounds for our car which weighs 1.3 tons. If the car has travelled 105 ft. in 12 seconds, it has moved at an average speed of six miles per hour, while the horse-power taken is 2.5, and because our motor works less efficiently under these conditions, the current required figures about 32.6 amperes. This average current is taken while the car travels four miles, so that if the total ampere-hour capacity of the battery is 130 ampere-hours, then nearly 16 1-2 per cent has been taken out simply for the acceleration.

We have endeavored to make these figures as simple as possible. Our formulae, of course, must be taken for granted by the non-technical reader, but it is a simple matter to verify them by consulting an engineer to whom such calculations are plain and readily understood. But to continue: This apparently leaves 108 ampere-hours capacity for travel at twelve miles per hour, but, as a matter of fact, this must be reduced further, for the reason that during this acceleration period the battery has been worked at a discharge rate above its normal rating, and such higher discharge has been at a much lower efficiency. Without going into the considerable calculation to find this for the supposed case, it may safely be said that the remaining battery capacity will not be over 100 ampere-hours. At twelve miles per hour, then, and with an average discharge of 14.6 amperes, the car can run 6.8 hours or 81.5 miles, so that the maximum total travel of the car is 85.5 miles upon the conditions so far assumed.

Of course, hills make a further drain upon the car, but it must always be remembered that for every foot of hill climbing there is a corresponding amount of coasting which requires no power. This coasting never balances the climbing energy, but the difference is considerably less than is commonly supposed.

We have endeavored to show exactly what an electric vehicle will do and what it will not do, and why. The man who demands excessive mileage of an electric car is demanding something for which he has no use. Generally his demand is based upon a misconception of the purpose of the car. The electric car is not, and does not pretend to be, a touring car. It is, however, a most sturdy and dependable vehicle for town and suburban use, and will accomplish much more than a horse-drawn vehicle at much less expense.

Insulating the Wires of Business

Being a Little Straight Talk on Laxity and Leaks

By W. E. Bayard

Let a leak appear in the transmission lines of a central station and the trouble crew, line gang, even the entire construction force, gets on the job to locate and stop it. The organization knows that leaks cost money, that every kilowatt generated which does not pass through a customer's meter is a dead loss to the company. Perhaps no report in central station operation is scanned so closely as that which shows the difference between current metered at the switchboard and current metered on customers' premises. Yet, while leaks of current are jealously watched and any excess immediately traced down and stopped, leaks of money, energy and if I may so express it, leaks of opportunity, are permitted to go unheeded in the business office.

Of course there's a reason—but reasons are not excuses. The chief reason for business laxity in a central station commercial organization is lack of preparation and foresight; the commercial campaign being subordinate in the eyes of the management, is left to the subordinates to develop. And these subordinates, while frequently clever and always industrious, have not the "weight" and balance or the authority necessary to carry on the business properly. One man prominent in this field goes even farther and claims that even the general managers of the average lighting company lack the commercial instincts necessary to carry on a business getting campaign with success. It is regrettable that I am not permitted to use this man's name to give weight to his words:

"Commercialism in central stations, in the broad sense in which that term is used and understood in all other lines of business, is a negative quantity: it may be said to be practically non-existant. Even in plants of the first magnitude the system which stands for success in the department store and among merchants, jobbers and manufacturers, resemble them not in the least. Concerted, sustained effort to secure any certain class of business in the way that characterizes the effort in other lines is rare. The character of the men hired is much below the ability and experience of those employed in the commercial world; such training as some of them receive is of a kind that a commercial man would at once proceed to have them unlearn. Experts in central stations who know especially well how to do some particular thing are rare, while the general manager, as well as the new business manager or contracting agent, are without the executive ability and experience necessary to handle a selling force."

This is pretty strong talk, but true. And it points to the basic fault which underlies all the leaks and laxity which characterize even the largest of the central stations in their commercial work. Let us get down to specific cases:

A large company in the middle west realized that it would profit by the publication of a series of educational newspaper articles and arranged with a local paper for printing such a series. The plan was that the company should furnish the material for the articles and that the paper should distribute extra copies to prospective customers of the company. This plan meant an $1800 appropriation. For several months all was well; then the company began to fall behind in supplying material for the articles; finally it supplied no material at all, the manager being "too busy to bother with it." Result! an expenditure of $150 a month absolutely wasted because of what? Because, to quote the

authority above mentioned, of "lack of concerted, sustained effort."

Case No. 2: A certain syndicate employed the services of an advertising agency to undertake a campaign for one of its companies. In due course the advertising was issued, the local lighting company having only the labor of affixing stamps to the circulars and depositing them in the mails. The campaign cost the parent company a goodly sum, but what happened? Only this: the advertising material was stacked under a table upon its receipt and no effort was made to mail it. Understand, the local company manager did not object to the advertising; in fact, he had approved of the contract and had O. K.'d the proofs. It was simply a plain case of "leak." Having started out on a campaign, this manager was too badly trained in commercialism to realize that he owed it to his company to "make good." He said he was "too busy." In reality he lacked the executive ability necessary to handle a selling campaign successfully. He was a good engineer but a poor business man.

Another case: A good sized station hired a commercial manager—a keen, clear-eyed youngster with the right instincts. As soon as he got his bearings, he mapped out a big campaign for selling signs—a campaign that for completeness and shrewdness has not been matched since. He took his plan and esitmates to the management who replied, "You're in charge; do what you think best." The campaign was launched and was a success—a big success. But there was a screw loose; the price at which he sold current was too low. Pretty soon he was fired, the commercial department was discontinued and the management of the company sneers whenever new business methods are mentioned. This was a case of a young man without adequate training being put in charge of a business that he didn't know. He could sell: but he was too immature to plan wisely.

These three cases are only typical: there are dozens like them. The lack of sustained effort; indifference alike to opportunities and waste; lack of experience — these faults are what make commercial work in central stations a subject of amusement if not scorn to the well-trained man of business. Maybe it is egotism that causes the clever engineer to think he can succeed without training or talent as a business man. But what would that same engineer say if a business man offered to write the specifications for a power house?

It's a hard problem to adjust. Personally, I believe the solution lies in the managements of plants realizing that they do not know it all; in their calling in expert *business* advice of the sort that seems to promise satisfactory results, and, finally, in their working calmly, considerately and consistently with these advisors until definite results are accomplished. But above all, stop the leaks. The man who spends $150 a month of his company's money for publicity which he is "too busy" to take advantage of is on par with the engineer who is too busy to hunt down a leak in the distribution system.

Two More City Signs.

Bristol, Virginia - Tennessee, and Phillipsburg, New Jersey, are both proud in the possession of "City Signs" presented to the communities by the Bristol Gas Electric Company and the Easton Gas & Electric Company, respectively. The Bristol sign is very clever and elaborate and is reproduced with a description on page 48. The Phillipsburg sign reads simply: Phillipsburg, N. J.

Both signs were presented by the central station with appropriate ceremonies and much popular enthusiasm. In Phillipsburg there was a parade in automobiles headed by a band with fireworksand speaking. The sign is located just across the Delaware River, from the famous "Easton—City of Resources" sign which the Easton Gas & Electric Company presented to the sister city about a year ago.

Charging the Storage Battery

By Julian N. Walton

The care and charging of the storage battery bears the same relation to the satisfactory operation of an electric vehicle as the care and feeding of the horse in its effect on the horse-drawn truck. Manufacturers give explicit instructions on all points concerning the care that a battery must receive in order to insure a satisfactory working and life, and these instructions should be adhered to if a maximum of success is to be obtained from the battery.

There are three essential points to be borne in mind in charging any battery. First, be sure the battery receives current at the proper rate throughout the charge; second, be sure the battery receives sufficient current to restore it to its greatest capacity; third, be sure the battery receives current at the proper time.

The rate, which I might say is the "force" of the charge, in all instances should be such as will not cause the temperature of the electrolyte to raise above 110° Fahrenheit from the beginning to the end of charge; nor should it be such a high rate as will produce gassing, sometimes called "boiling," before the battery is three-fourths charged. When the cells begin to gas, it is a sure sign that the rate at which the chemical changes are occurring is faster than the plates can absorb, and the current must be reduced. So the point at which the cell begins to gas will serve as a good guide for the adjustment of the rate, for if the cells gas freely it indicates that current is being wasted, for each little bubble of gas is causing a wear and tear on the plates and the active material is being thrown off and precipitated.

In deciding whether or not the battery is fully charged, be sure that the gassing is taking place when the minimum current given in your instruction schedule is passing through the battery. This is a safe guide in determining when a battery is charged and if any of the cells in the battery do not gas it is evident that they are low and should receive attention. Never adopt such a rate as will overheat the battery, for in an overheated battery sulphation is facilitated and excessive gassing is bound to have occurred, otherwise the battery would not have been heated.

Too much emphasis cannot be placed upon the necessity of knowing that the battery receives the proper amount of current. Too much means an overcharge which, if continued, will seriously interfere with the life of the battery besides wasting the current. Not enough current means an undercharge, and the battery cannot do its maximum work, for in an undercharged battery some of the lead sulphate remains unconverted and the succeeding discharges will only increase its density until it finally cannot be reduced. Hence a loss in the batteries' capacity.

Batteries should be charged as soon as possible after discharge is finished, for if a battery is allowed to stand in a discharged state indefinitely, sulphation is facilitated, and the positive plates tend to disintegrate in the weak solution of electrolyte. Keep batteries clean and properly charged, however, and they are bound to give good service.

Big Company Sales Agents Meet

The general sales agents of the central stations of New York, Chicago, Philadelphia, Boston, Cleveland, Detroit and Brooklyn held an informal meeting on July 11 and 12 at Briarcliff Lodge, Briarcliff Manor, N. Y. This was the first of a proposed series of similar conventions when these gentlemen can join in the discussion of big company sales problems. A number of papers were presented, but were not subject to publication.

ELECTRICAL PROGRESS

AUTOMOBILE NUMBER

Supplement to "SELLING ELECTRICITY"

AUGUST, 1910

Thomas A. Edison in the "Electric" which has been Making the Hundred Mile Runs Testing his New Storage Battery

Published by

THE RAE COMPANY

74 Cortlandt St., New York

The **Studebaker**

Increase Your Revenue by Encouraging the Use of Electric Vehicles in Your Locality

Every electric vehicle in use is an electric current salesman.

It is a source of never-ending profit for power stations.

By co-operation with us you can do much to encourage the use of Studebaker Electric Wagons among the mercantile interests of your City.

To merchants, Electric Vehicles mean greater efficiency of delivery service and economy in maintenance.

To you, they mean greater and constantly increasing profits.

One single house in New York City whom we are equipping with an electric delivery system will require 24,000 kw. worth of current per year to maintain it.

We have a plan that will work to our mutual interests. Write for it!

Studebaker Automobile Co., South Bend, Ind.

BRANCHES—New York, Cleveland, San Francisco, Louisville, Portland, Minneapolis, Dallas, Pittsburg, Chicago, Boston, Denver, Seattle, Columbus, Kansas City, Stockton, Salt Lake City, Oakland, Sacramento, Philadelphia, Indianapolis, Milwaukee, Boise. Adv. 3-B-1328.

Electrical Progress

Co-Operating With Your Car

The Sane Application and Operation of Electrical Vehicles in Commercial Service

By C. L. Morgan

Application, as well as proper selection, must have the most serious consideration and investigation in the purchase of electric vehicles, because an error at this point is only limited in its ultimate cost by the time that service is continued without re-arrangement, and frequently the needed change involves an unexpected and irritating expense, often great enough to consign the vehicle to the realm of so-called failures.

Wherever even decent road-beds exist and the mileage as actually worked is well within the capacity of the battery, there is no real competitor of the electric. But for poor roads or long country runs, or for those who care more for a smaller initial investment than a lower yearly repair bill, the gas cars, for loads up to 2000 pounds, have a field just as much their own as has the electric. The heavy duty trucks require in their selection much more careful analysis than the smaller machines for which, in the average service, mileage and not load is the dominant factor.

If horse vehicles are really handling about a 2000-pound load day in and day out, and power vehicles are to be substituted, we generally find that a two-ton machine is proper, because as the driver does about twice the mileage to give him deliveries for this increase mileage he must have twice the amount of goods. Furthermore, the electric may by its reliability and speed expand business and obtain new customers because of better service and greater range of free delivery, both factors tending to increase the loads actually put on the vehicle.

Generally speaking, it is better to operate a vehicle somewhat underloaded than to carry constantly an excess much above the normal rating; on the other hand, because of the greater investment as compared with horses, every delay must be reduced to the limit or the hours actually in service must be kept at the maximum.

A Windlass Truck (Built by General Vehicle Co.)

As an example of misapplication, a wholesale grocery house bought a 3½ ton vehicle for trucking from railroads and warehouses to stores. The delay to the driver in getting to the shed at the railroad is constant, regardless of load, and a five-ton truck in this case would show nearly 100% greater earning capacity, even at its slower speed, because an hour or two lost time is not unusual. But as the horse trucks

had been three-tonners, so the electrics were bought of the same low operating efficiency.

Too little attention has been paid to the advertising value of the vehicle—not that of novelty, but that of real attractiveness and aggressiveness. For instance, a prominent candy manufacturer could well afford to put a power vehicle in service simply to let the public see its "Fresh every hour" special delivery; or, again, a dry goods house could demonstrate readiness for "Deliveries to New Extension Twice a Day," or "Special White Sale—Deliveries Same Day."

Electric machines require so little attention that the owner, obtaining

One of the White House Vehicles
(Built by Baker Motor Vehicle Co.)

every day the 30 to 45 miles required, forgets that there are wearing parts, chains, gears, etc., needing lubrication or adjustment at regular intervals, not when "someone thinks of it"; nor what is worse in its resultant cost, when worn out. Records of eight or nine months without the loss of an hour or a repair of any kind are today so common as to cause no comment except from the owner when he is told that his steering gear must have new forks, instead of bushings—$50.00 instead of $3.50. The experienced producer of power trucks today has proven his design, has standardized and stocked his parts, and therefore can offer the owner the insurance of continued operation—providing the monthly premium is paid in the shape of a thorough inspection and prompt replacement. This element of economy—standardization—has made possible the repair and constant upkeep of machines without the assistance of either the customary "garage" or expert machinist.

The owner of five or more machines in the larger cities by keeping them himself can save enough from the prices charged by public garages to enable him to have competent labor; but the single wagon should usually go to an electric garage, unless there is an electrician or engineer available and space for storage at no cost. Someone with mechanical sense at least must be responsible—and must follow directions to the letter.

The need for spare vehicles is overlooked. The wagons should have periodical painting, at least, and that takes three to four weeks, or with twelve to fifteen wagons in service, there will be one in the paint shop nearly all the time if each receives attention yearly. The sooner the manufacturer insists on an appreciation of this point by the user, the better the trade of that concern; for there will be fewer large bills for postponed repairs and in general a lower cost per mile for delivery. As an example, a twenty-unit equipment has operated for about eight years, but never beyond eighteen wagons active per day; another of fourteen operates on the average 13.6 wagons per day and shows for chassis repairs about 30% more cost per vehicle mile, even with due allowance for all other factors affecting results.

Probably there is no single element so much maligned, nor so little understood, as the storage battery, which actually costs less per mile including both current and depreciation than the gas and oil alone, of most gas machines, though not including depreciation. Vehicle batteries are really far from difficult to understand commercially, and their care is not as great, nor as complicated, as the layman imagines. The careful following of simple directions insures continuous and satisfactory service. Here again we

find a tendency to neglect, simply because the battery goes on day after day turning out the work expected, at times under conditions bordering on abuse.

There are many examples of former failures (so called) now turned into conspicuous, present-day successes because the user expects no more than a reasonable output, not what imagination painted. Having that view point, he applies the energy where it does the most good, even to buying an extra battery and doubling the daily mileage in a safe and sane fashion. Those in the business know of dozens of cases of the reclamation or rejuvenation of what had been considered "junk"—each typical in one phase or another of neglect or abuse due to ignorance or willful and continued misapplication.

The main points for care, either in buying or selling electric vehicles, are—

Adaptability—whether the gas, gas-electric or electric-clutch is correct.

Selection—capacity of vehicle, and type and size of battery.

Application—routing and methods of delivery.

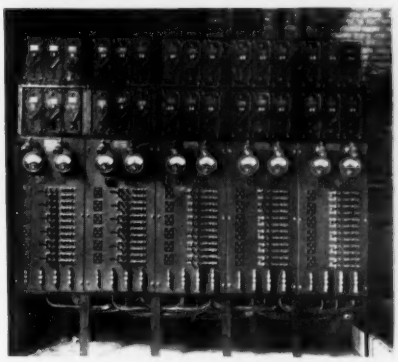
Operation—care of machines, proper driving, loading, etc.

Upkeep—periodical overhauling and prompt replacement.

We have touched on a few of the prominent details of the first items, but the last so surely measures the probable success of the car that great stress must be placed on the need of proper education of the user.

To minimize the upkeep or replacement expenses establish full records covering all details of cost and service. See that there is a daily inspection, probably at night, with necessary adjustment and lubrication, only 15 or 20 minutes per machine and battery being required; a weekly battery inspection; a monthly examination and test; and then periodical complete disassembly; every 5000 miles for machines of large capacity or 7500 to 10,000 miles on smaller machines. Each step in such a program is readily taken and the permanency of the resultant satisfactory service is the dividend paid to the user.

Service records should show cost of each driver's repairs, mileage from each battery and its upkeep cost, mileage and repair costs for each machine. This mileage should be taken for each tire, remembering that the left front is the easiest worked, while the right rear has the hardest service, with a difference in a properly designed vehicle of at least 10 to 15% between these extremes. Many concerns pay a bonus for maximum service at least cost, $10.00 per month to the driver having best record taking into account —current per mile, minor repairs, etc.,



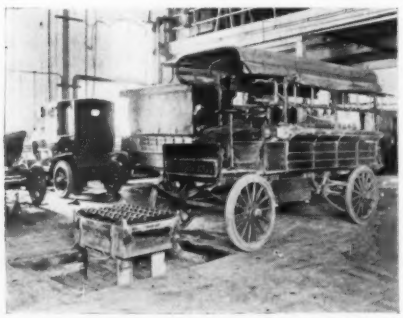
Typical Public Garage Switchboard

but excluding the larger items for overhauling, etc.

In addition to these items, the need for which is apparent, complete daily records of service should be taken at intervals showing delays, actual running time, loads, stops, etc. This report to a traffic manager now and then means an occasional shift of routes, more intelligent scrutinizing of the cause of delays, lighter loading, and the elimination of dead or unprofitable mileage.

To sum up, the essentials of proper application are reasonable mileage per battery, (not to exceed the normal average capacity under worst conditions,) no overloads, careful driving, proper use of coasting, of brakes and of different speeds, with as few delays as possible. This means entirely new

schemes in the handling of goods, loading and delivery in many cases. For example, the application of electric winches or hoists, quick or automatic dumping bodies, and in fact every device or method to accelerate service or increase the earning power. A brewery pays a bonus for everything handled by a driver above a certain fixed number of half barrels per day, and many concerns have applied recording devices of one type or another showing in detail every movement of the vehicle, so as to keep watch of lost time. In short, the final



New York Edison Co.'s Emergency Car with Battery Removed
(Built by General Vehicle Co.)

analysis of the power vehicle of any type, is that of a pure labor-saving machine and it is the reduction in pay roll for equal service that puts more vehicles into active work than all other considerations combined. Any concern with a care to its dividends in these days of minute economics and high efficiency can no more afford to buy power vehicles hastily than they can afford to continue the general use of the horse, costing more from every point of view and restricting absolutely the work the man can do. The electric has no limit except that of the man.

The element of commercial speed is entirely misjudged by the new user, who is familiar with 20 to 30 miles per hour in his touring car, for he forgets that a power truck has to contend with traffic, that stops are many, and furthermore that every item of the cost of operation nearly quadruples as the speed is doubled. That is, if 12 miles per hour has been found by years of service to be the practical limit for 2000-pound wagons, when you speed them up to eighteen miles, it will cost twice as much for tires, power, and general repairs, a fact seldom appreciated until experience teaches.

Today all standard types of battery give a very satisfactory mileage when proportioned to the work. To properly care for batteries of any type a good switch-board is necessary and sufficient time for charging, otherwise an abnormal and excessive waste of current, as well as damage by heating results. All vehicle batteries heat during charge and though they cool on discharge it is not wise to allow a temperature above 100 degrees F. during the charge on any battery. Simply look on the battery as not unlike the horse in that it must not be overheated, must be well fed at regular intervals and should not be worked to exhaustion. It is unlike the horse, however, in that it is certain, has capacity in excess of requirements, works better in the hot days of summer, is unharmed by the storms of winter and can't be over-driven or harmed in service by anything except downright carelessness.

As an indication of the actual status of electric vehicles today it is well to record the fact that a large user of delivery wagons—a department store—has adopted two rules for electric drivers; "No pay when a driver's machine is laid up for repairs other than overhauling"—that's clever and self-explanatory. "Less pay to the electric than the horse driver." "Why, a man can ruin a pair of horses these hot days," said the manager, "or at least it costs us a lot of worry and lost time. I'll be happy a year from now when we don't have any more."

How to Look at the Mileage Question

What is a Day's Work for the Pleasure Vehicle?

People who know and appreciate the electric vehicle, that is the runabout, the coupe, and the other types used for service about town, are the first to realize and assert that it is *not* a touring car. It takes the place of the family carriage. The average speed of any vehicle in the city streets, considering the delays of traffic, will not exceed twelve miles per hour, and it is hardly probable that a shopping or calling trip would ever exceed two hours of actual riding, or say, twenty-five miles of car travel, even when the distance to and from the shopping district is as great as ten miles. Now, in addition to this possible daily use of the car, let us add a three-mile trip to school with the children, a seven-mile run to the club meeting, an evening ride to the park or about the residence part of the town which takes, say three hours of actual driving. This makes a total day's traveling of seventy miles as probably the greatest distance a pleasure vehicle will be called upon to travel in any day, and to do this mileage, the car must be in constant service not less than six solid hours.

The physician, contractor, architect or city salesman will hardly require this mileage, the calling of such men seldom amounting to over six hours per day, of which not above two-thirds is spent in actual travel. So, if we allow four hours of riding, the requirements are from fifty to sixty miles per day.

Consequently the man who demands excess mileage of an electric car is requiring something for which he has no use. The electric is not, and does not pretend to be, a touring car, but it is a most sturdy and dependable vehicle for town and suburban use, and will accomplish much more than a horse-drawn vehicle at much less trouble and expense.

Typical Sunday Morning Scene on Euclid Ave., Cleveland. Find the One Gasoline Car in the Group

Experience in Brooklyn

What Four Firms Say About the Electric Delivery Wagon

By Frederick Benjamin

The success of the commercial electric vehicle in the city of Brooklyn is an eloquent testimonial to the dependability of these machines for city deliveries where ample mileage and capacity is essential. Brooklyn spreads out in all directions and covers some 77 square miles, so that beyond the business heart of the city are closely built outlying areas which tax the city delivery to the utmost. On the other hand, the grades are easy and the pavements excellent, an ideal field for the electric vehicle.

Adams Express Co. Trucks Backed Up to be Loaded and Charged
(Built by the Landsden Co.)

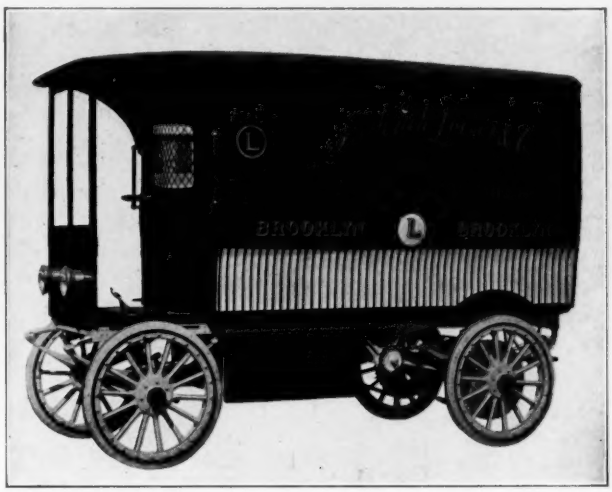
The first Brooklyn firm to experiment with the electric vehicle with the view of displacing their horse equipment was the Adams Express Company, when, in 1906, they made a small installment of electric vehicles. This was gradually increased until 1908, at which time they had displaced their entire horse equipment and they are now operating 42 electric vehicles. Their experience is best given in the words of the Brooklynmanager, Mr. W. W. Pendleton.

"Our use of electric wagons," he says, "gives them the most exhaustive tests possible, and these tests have demonstrated beyond a doubt that they furnish the most satisfactory method of transportation obtainable for any such territory as Brooklyn. When you consider that we operate daily in about sixty square miles, and that we do it without any hitch, and with a high degree of efficiency unapproachable by horse and wagon delivery, it would seem as if we had certainly solved the transportation problem at last. We have had our wagons out in the worst weather, in rain and snow and heavy storms, yet they have never caused one hour's interruption to our service. If a horse and wagon makes eighteen miles a day we feel that we are getting all we can expect

and yet in the same time and over the same ground our electric wagons make thirty-five miles and in some cases considerably more.

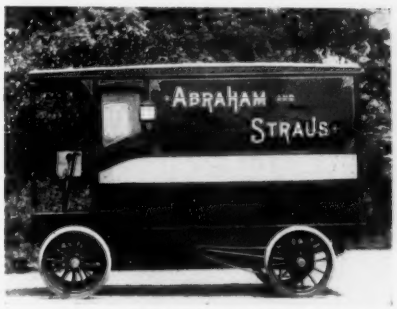
"Our equipment is constantly being added to and it is our intention to entirely do away with horses. We put a horse driver under a course of instruction and in a week's time he is perfectly competent to drive an automobile. We are thus enabled to retain the services of our expert expressmen. There is less wear and tear on the electric vehicle, too—rubber as against steel tires accounting largely for this. These electric wagons being built much lower are loaded and unloaded more quickly. This is an important point in the express business and saves a good deal of time and chance for damage to the goods. The automobile has a considerably greater carrying capacity. One and two-horse vehicles are replaced with one and two-ton electric wagons respectively.

"These are benefits to our customers as well as the company, but there



One of the Loeser Cars
(Built by General Vehicle Co.)

are other potent reasons why this electric service is very much superior to old methods, from a standpoint of benefit to the company only. Our delivery equipment requires far less room to house than formerly was the case. The floor space that we used to devote to wagons, horses, fodder, etc., etc., is now available for nearly twice as many wagons. All stable hands, stable dirt,



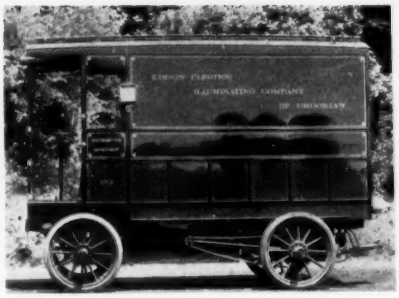
One of the Abraham & Straus Cars
(Built by the Lansden Co.)

horses, harness, etc., are things of the past, and in their place we have a quicker, cleaner and far more satisfactory service than we formerly considered possible.

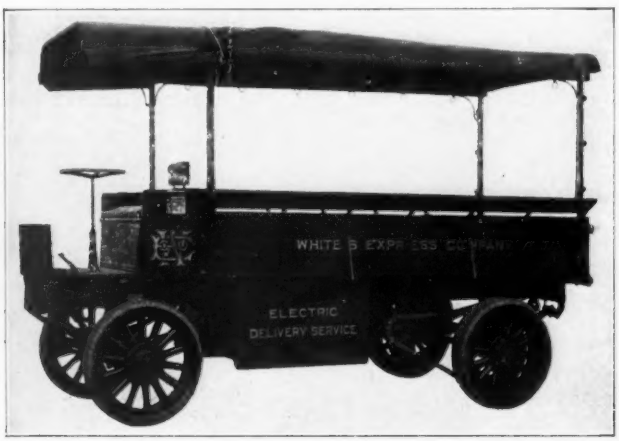
"Whenever a wagon returns to a station to be loaded or unloaded, it is immediately put on charge and kept there until it is ready to again start out. In this way our wagons are always ready for whatever service may be required of them."

The next large firm to follow in their footsteps was Frederick Loeser & Company, one of Brooklyn's very large department stores, employing a horse equipment consisting of 60 wagons, 90 horses and 45 drivers. Due to skepticism regarding the possibilities of the electric vehicle at that time, the Loeser Company was inclined to feel its way gradually and to thoroughly test the electric vehicle before ordering any number, so in 1905 an order was placed for three machines, one of two-ton and two of one-ton capacities, equip-

ped with the regular Loeser wagon bodies. Each machine displaced from two to three horse-driven vehicles, but to test the merit of these electric wagons still further, the Loeser Company at the same time ordered two gasoline trucks and placed them in the same service. They operated these machines, compiling data all the time until early in the year of 1908, when they were satisfied as to the superiority of the electric vehicle over either horse or gasoline equipment. At this time, an additional order was placed for 10 machines to displace 30 horse-wagons, and since then 20 more machines have been ordered, which makes a total of 33 electric vehicles now in operation in their service. Each machine covers a route formerly requiring two horse-vehicles, is obliged to carry more load on account of the increased business of the firm and does the entire work in less time. The average mileage accomplished per day per machine in service is around 30 and very few machines are ever idle. The gasoline cars are still in service and are used for the extremely long hauls which are required in some sections, where high speed is permissible and desirable, but the economy of first cost and operation of the electrics has prevented increasing the original gasoline equipment of two cars.



The Brooklyn Edison Co. Uses this Delivery Wagon
(Built by the Lansden Co.)



One of the Whites Express Cars
(Built by General Vehicle Co.)

Abraham & Straus, another large department store, after becoming convinced of the merits of this type of vehicle through watching the performance of the Loeser machines decided to convince themselves still further, and in November, 1909, placed in service one large truck. As a result of their records they were not long in realizing what the electric vehicle would do and they hurriedly placed an order for 10 additional machines, which have lately been delivered. These wagons are operating so satisfactorily that the company is now contemplating displacing the remainder of its horse

Three Brooklyn Cars Owned by Oppenheim Collins & Co.
(Built by Studebaker Automobile Co.)

equipment with electric propelled vehicles.

One more illustration. White's Express, a large local delivery company, has been operating five 3 1-2 and 5-ton electric trucks for over one year with the greatest satisfaction. These trucks have displaced over twice their number of horse-drawn vehicles and averaged more deliveries and heavier tonnage per day than the total previous equipment.

An interesting indication of this company's attitude toward the electric vehicle comes from the power salesman of the Edison Electric Illuminating Company. White's Express still maintains a considerable number of horses and the power man called on the manager to talk to him about a motor-driven oat crusher for his stable. He produced ample data to prove that by crushing the oats before feeding, the quantity of feed per horse could be considerably reduced, with ample margin to cover the cost of the oat crusher and the power bill. But the manager of the Express Company said: "Young man, your figures are all right and if I had equal confidence in the future of the horse, I would not hesitate. But the horse is a vanishing proposition as applied to our business and any further investment we make will be in electric vehicle equipment."

These are just a few instances of the satisfactory performance of the electric commercial vehicle in Brooklyn. Various makes of cars are in use and the introduction of these vehicles by the Brooklyn Edison Co. has met with success from the first.

A Few Figures

In New York city, there are 1100 electric trucks as against 365 gasoline.

Four years ago less than twenty electric vehicles were in use in the city of St. Louis. Today the number is close on to four hundred.

Ninety per cent of all electrics being sold in Chicago are replacing gasoline installations.

The Combination Garage

How the Auxiliary Electric "Fits In"

The first popular misconception—the belief that the electric vehicle was to be a substitute for the touring car—has done much to retard the universal appreciation of its many sterling qualities. With the realization, however,

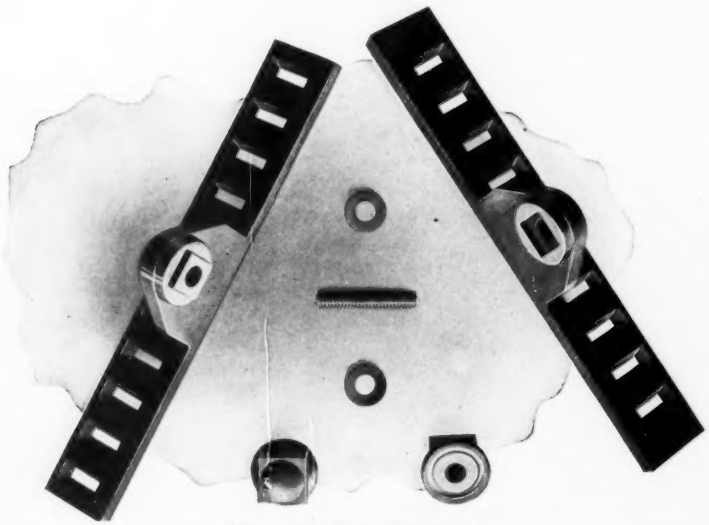
The Combination Garage 20 x 20 Feet

that the electric is neither designed nor intended as a touring car for rough cross-country service, the smaller vehicle appears in its proper light, as a safe and simple convenience for

Showing the Position of the Two Cars In the Garage

the family, as the logical equipage for the routine station work, social calls, marketing and the many errands that mark the day of the average family in any city. For the electric is al-

A Tried and Proven Feature
OF
"National" Vehicle Batteries



"National" Bolt Connector

AN exclusive feature of "National" batteries is our improved bolt connector, of especial design. Owing to this design no corrosion is possible, and perfect contact between adjacent cell lugs is always assured. With the old type lead-burned battery, inspection and cleaning of cells were lengthy, laborious and dirty jobs. Sawing apart of lugs, re-burning, providing a gas generator—all are now wholly unnecessary. The "National" bolt connector, furnished only with "National" Storage Batteries, is the remedy!

WRITE TO NEAREST OFFICE FOR COMPLETE INFORMATION ON "National" BATTERIES

The United States Light & Heating Co.

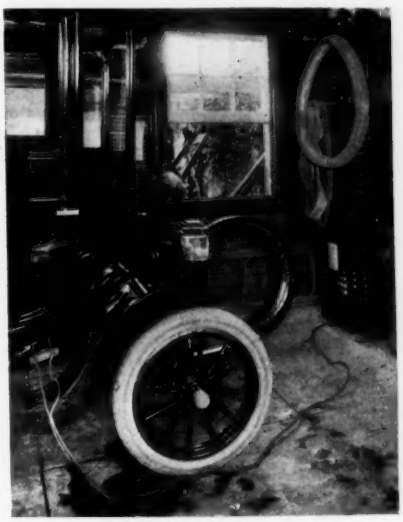
GENERAL OFFICES: 30 CHURCH STREET, NEW YORK

New York Boston Buffalo Cleveland Chicago Milwaukee San Francisco

ways ready for instant service, and it means independence of trolley cars and freedom from the necessity of calling out the ponderous gasoline.

As people are beginning to recognize more and more the absolute dependability of the electric as a handy runabout, there is a growing demand from owners and devotees of the higher powered gasoline car, for auxiliary electrics. But not infrequently it develops that the garage has been constructed with such scanty floor space, that it is impossible to take care of even the small additional area required, though a little foresight would have provided for it, at very small expense.

The simplicity of the electric vehicle and the ease with which it may be housed is well illustrated by the accompanying pictures, photographed in the garage of Mr. Van Rensselaer Lansingh, in Brooklyn. Here on a floor area twenty feet square, a large touring car and an electric coupe are sheltered and groomed with ample facility.



The Electric "On Charge"

The first view gives a good idea of the size and exterior appearance of this combination garage. The second shows how the two cars fit in with plenty of room to work around them under ordinary conditions; in fact, both or either of the cars are washed indoors without the necessity of running out the one not receiving attention. The third cut speaks for the ease with which the electric vehicle is maintained, for here the coupe is shown with the batteries "on charge," the green glare in the mercury arc rectifier being discernible in the right background. The process of charging the battery consists of pushing in the plug at the side of the car and throwing the switch beside the rectifier.

Great dependence is placed upon this machine by the ladies of the household, and it is in constant service. It is also used well-nigh exclusively in bad weather for local service, as it provides protection from the wet, and saves the big car from the mud.

The reason a man employs a chauffeur is because he knows it will save him personal labor and responsibility in caring for his automobile and because he knows that with this better care the car will be more reliable, giving the owner more enjoyable and economical service. The function of the small electric is identical, for it relieves the heavy car of the innumerable local errands for which it is not designed and it provides an ever-ready auxiliary car service beyond the fear of interruption.

And the beauty of the electric from the point of view of the combination garage, is the fact that it requires only the floor it stands on and room in the corner for the charging apparatus. You can see in the picture how little space it takes. It costs but little more to build a garage twenty feet square, than to make the dimension just enough to accommodate the big car, if it is done in the beginning; therefore it is only the part of wisdom for every man who builds a garage for his touring car to provide these few additional feet for the auxiliary, which will make him secure against every calamity that the most disloyal gasoline engine or chauffeur can devise.

Head Light (G-16½)

Side Light (G-10)

Side Light (G-8)

Tail Light (G-6)

Limousine (T-5)

(Illustrations one-half size)

Packard Mazda AUTO LAMPS

Electric Lamps require **no matches, no filling;** they don't **blow out** nor **leak;** they do not bring **danger of fire,** they are **conveniently lighted** and extinguished; they do not **smoke** or **burn** the reflector; they operate **winter** or **summer** with no difficulty. Battery capacity is reduced to a minimum with

Packard Lamps

These lamps consume only one-third the amount of current consumed by the ordinary carbon lamp. Consuming so little current the ignition battery may be used for lighting or an additional battery of light weight may be used. **Electric Lights are always ready, always effective and always convenient.**

Write for Price List and Bulletin No. 12
"The Electric Lighting of Automobiles."

New York & Ohio Company

Warren, Ohio

An Electrical Elephant Ambulance

All records for heavy-weight ambulance patients were recently shattered, when a Studebaker electric truck was converted into an impromptu ambulance to carry "Tillie" to the hospital.

"Tillie," by the way, is the four-ton elephant belonging to the Robinson Bros. Circus, and while helping to push a heavily loaded circus wagon out of the deep mud at Pickwick, Ohio, had the misfortune to strain a tendon in her left front leg.

Bandages and liniment were immediately applied, but the swelling rendered expert attention necessary. No veterinary was available at this place, and a telegram was dispatched ahead to the Studebaker Company at South Bend, the next stopping point, asking for a vehicle of sufficient capacity to transport "Tillie" from the show grounds to the veterinary's hospital, where the much-needed instruments would be available.

The Studebaker Co. at once sent an electric truck to the show grounds, and with its assistance "Tillie" was soon receiving the necessary surgical attention at the hands of a well-known South Bend veterinary.

"Tillie" Leaving the Circus in the "Electric Ambulance"

The Anheuser-Busch Trucks

The Anheuser-Busch Company, the big St. Louis brewers, have just signed a contract for an immense new garage which will cost, complete, with all its equipmment, about $100,000. The latest improved appliances for charging and maintaining 60 electric automobiles will be installed.

Out of 49 electric trucks at the Anheuser-Busch garage during the busy season, you will never find more than one or two machines laid up. There have been as many as ten consecutive days when every machine in the fleet was in condition to be put into service, and records show that repairs on the streets are very infrequent.

These electric trucks are all operated by beer-drivers, who are members of the Beer Drivers' Union. It only takes three days to break in one of these team drivers, when he is sufficiently competent to take out a truck for himself.

In the little city of Rockford, Illinois, with 50,000 inhabitants, there are 145 electric vehicles in daily use. That means 3.5 electrics to every 100 people and some of these cars have been in service for over ten years.

ELECTRIC LANSDEN WAGONS

LANSDEN Electric Wagons, equipped with the **Edison Storage Battery,** have been successfully marketed for the past six years, during which time several hundred have been placed in the hands of users. These are today all in operation and still owned by the original purchasers. Lansden Electric Wagons have made exceptional records for economy, durability, low cost of upkeep, and general all-around efficiency. The **Edison** (nickel-iron) **Storage Battery,** with which they are equipped, is the lightest, cleanest and longest-lived in the world, having greater mileage capacity than any other.

IN the delivery service of foremost department stores, dry goods stores and express companies, Lansden Electric Wagons with the **Edison Battery** are extensively used. Hardware, piano, textile and machinery manufacturers, brewers, etc., are employing the 2 and 3-ton trucks, and the new industrial trucks are now in operation at some of the largest steamship piers and railroad terminals in Greater New York.

LANSDEN Electric Wagons and Trucks are distinguished by the following characteristics, essential to the best and most satisfactory service:

Reliability, simplicity of construction and operation, light weight in proportion to load capacity, quiet running, easy spring suspension and steady acceleration, high overload capacity and long life, great mileage to each battery charge, freedom from mechanical and battery troubles, low cost of operation and upkeep, absence of odor and fire hazard.

INTENDING purchasers of electric delivery wagons or trucks should investigate the Lansden, and, taking it as standard, make comparisons.

Tell us your requirements, and we will gladly send estimate of original cost, operation and other desired information.

The Lansden Company
235-B High Street
NEWARK
N. J.

The National Advertiser Takes Notice

How the Story of the New Broadway Sign Has Been Featured in the Advertising Journals

On the evening before Colonel Roosevelt returned to New York from his African hunting expedition, and on the morning he arrived, while the city was thronged with thousands upon thousands of visitors come to witness the parades and ceremonies, this advertisement appeared in all the New York papers, evening and morning. It occupied a space three columns wide

Chariots of Fire
Will Race in the Air
EVERYBODY INVITED
To-night at 8 o'Clock
Real Life Action Reproduced in Fire. 20,000 Electric Bulbs operated by 2,750 Switches from the Roof of the Normandie Hotel, at
38th Street and Broadway (Facing Herald Square)
See the World's Greatest Electrical Display Put in Operation
THE RICE ELECTRIC DISPLAY COMPANY,
Owners and Operators
1328 BROADWAY, NEW YORK

by eight inches. No sign the world has ever seen has been so widely and successfully advertised, for throngs of people waited over to see what it was all about, and that night when the lights were turned on and the chariots began their race for publicity, Broadway was jammed for blocks, and each up-turned face watched and wondered and read the rapidly changing ads.

The sign itself is a masterpiece, a wonderful combination of a talking sign and a flashing display. The head line bears the constant burning title, "The Leaders of the World," above the enormous talking sign, which in rotation advertises the product of the following manufacturers:

Armour & Co. (packers), Chicago.

Prudential Insurance Company of America, Newark, N. J.

Remington Typewriter Company of America, New York.

Walter M. Lowney Company (chocolates), Boston.

B. F. Goodrich Company (auto tires), Akron, Ohio.

National Cash Register Company, Dayton, Ohio.

L. E. Waterman Company (fountain pens), New York.

Geo. E. Keith ("Walkover Shoes"), Brockton, Mass.

National Surety Company (surety bonds) New York.

Curtice Bros. Company ("Blue Label Ketchup"), Rochester, N. Y.

Washburn-Crosby Company ("Gold Medal Flour"), Minneapolis, Minn.

Quaker Oats Company (cereals), Chicago.

New York Edison Company, New York.

Beneath this "copy" is a wonderful representation of a chariot race, with two Roman chariots in plain view, a mass of lights, the horses' legs, manes and tails flying, and the scenery whirling by as in the Ben Hur scene on the stage. The effect is all that could be desired, for the illusion is complete.

Much has been written in the newspapers and in the electrical journals about this new feature of Broadway night display, and the country at large —those who are interested—is fairly familiar with its dimensions; how 25 grown men can actually get into the largest chariot, how the sign is one-third of a city block wide and rises 72 feet, seven stories of the ordinary building, from the roof of the "skyscraper" at Thirty-eighth street and Broadway. The figures covering the equipment are enormous; 600 horsepower is required to operate it, 20,000 incandescent lamps are installed, 500,000 feet of wire being used with 70,000

The Sign from Five Blocks Down Broadway

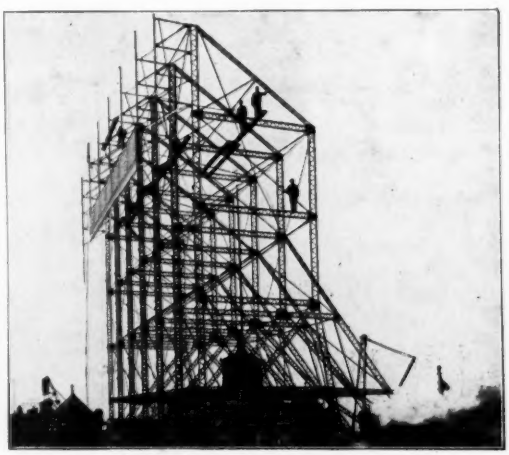
electrical connections and 2,750 flasher switches producing over 2,500 flashes a minute. But to the central station man, the most significant feature of the whole installation is that here over a dozen manufacturers have joined together bound for a period of *twenty-four months* to support an advertising venture which relies entirely on the pulling power of electric lights.

The expense of such an enterprise is, of course, very heavy, and for these national advertisers to pledge themselves to the project for such a long term is an eloquent testimonial to the value of electric display. These men are masters in the science of publicity and weigh every campaign strictly on the basis of earning power. And it was only their absolute confidence in the "circulation" of this sign, facing and legible to over five blocks of crowded Broadway, and in the permanency of the appeal of such constantly changing copy, that could justify such an undertaking in their eyes.

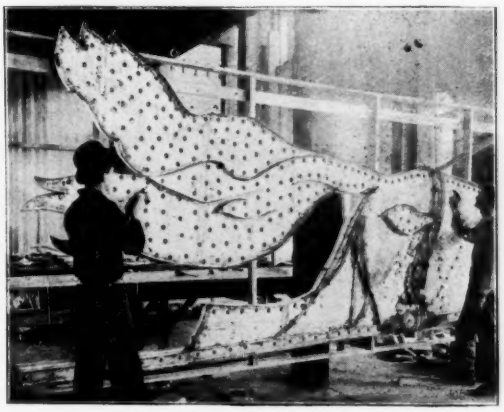
Before the last two conventions of the National Electric Light Association the subject of how to interest the national advertisers in electrical display has been very seriously considered, and right now a definite plan is before the new Commercial Section, with money pledged to effect some adequate effort toward laying the virtues of the central station's proposition before these prospects. In light of this, therefore, the new sign on Broadway is of more than passing interest to the industry because of the publicity it has engendered.

This publicity is represented by columns of newspaper space, scattered throughout the country by the numerous syndicate news distributors; but even more important to the electric light men are the numerous illustrated articles in the advertising trade papers which are read and relied upon by the very men who are placing the advertising for those national advertisers whom the central station is most anxious to reach. Gradually these magazines are taking more and more interest in electrical display as an advertising medium and it is constantly in evidence in the form of articles by central station advertising men, descriptions of some city slogan sign or other news. The interest shown in the new Broadway display is but an illustration.

For instance, in a recent issue of *Judicious Advertising*, one of the foremost journals in the advertising field,



Building the Structure



Building a Horse's Tail

over two pages were devoted to the chariot race sign, and the accompanying views of its construction and appearance were reproduced. The article was run under the head, "Great Advertisers in Mammoth Sign Affiliation," and after an interesting description of the sign concluded with this quotation from one of the promoters of the enterprise:

"Never in the history of advertising has such an affiliation been effected, or has such a mammoth undertaking ever before been accomplished as that which will be known as the 'Leaders of the World' display. It has taken more than a year to shape up the affiliation and today it may be termed an unqualified success.

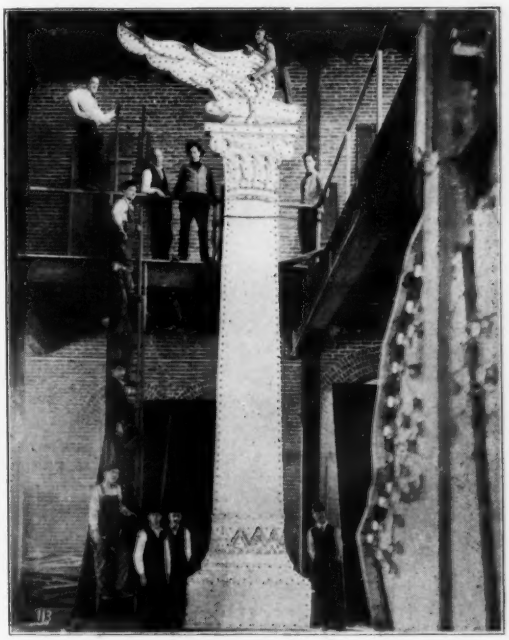
"We have made it a point of not inviting nor accepting contracts for beer advertising, whiskey or patent medicines.

"The object of the Ben Hur staging is naturally made for its attention-getting qualities; then the eye is attracted by the copy above, and immediately above that is the lettering, 'Leaders of the World.' That the sign may be seen all over the down town district in New York is shown by the fact that the photograph, which necessarily must be taken from a nearby point, was taken at Thirty-fourth street, five blocks away from the building on which the sign stands."

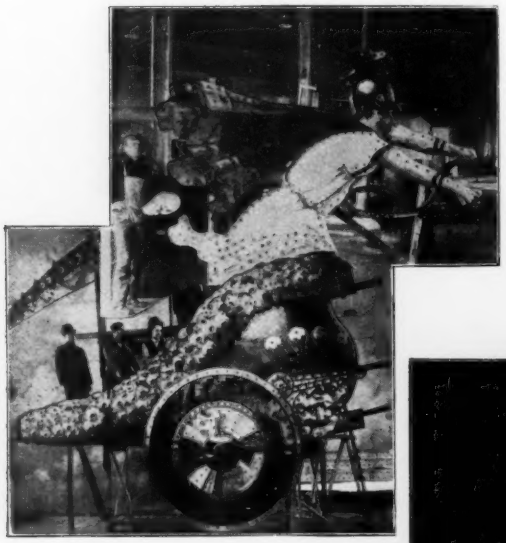
Another very interesting and popular journal, *Advertising & Selling*, devoted to the subjects indicated by its title, published another article in similar vein. It was headed, "Along the Great White Way," and the cuts of the two Barnum & Bailey signs shown here, were reproduced. In commenting on these signs, the article said:

"It is very interesting, this outdoor campaign of the circus. When the 'Greatest Show on Earth' pitched camp in Madison Square Garden there was a scramble for electric sign stands.

"The circus people were the first to see and utilize the great advantages of outdoor advertising, 25 or 30 years ago. Then the commercial advertisers 'caught on' and outdid them at their own game. But the circus came back into its own in this New York campaign. There were four electric signs



Wiring a "Flare"

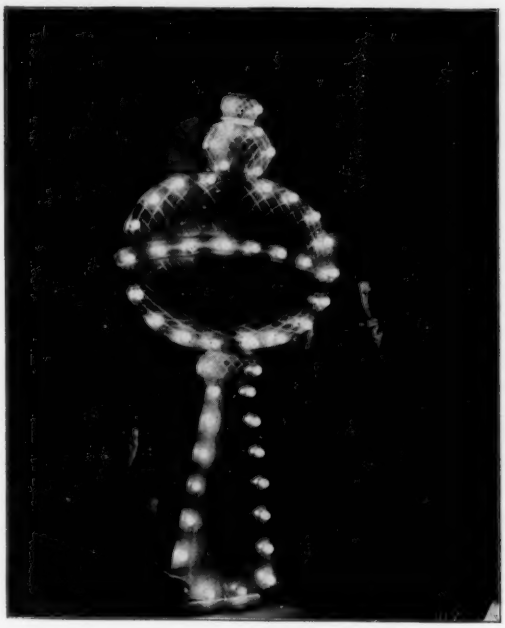


Human Comparison of Chariot's Size

carnival spirit aroused was hopeless."

Then followed a description of the chariot race sign with full facts and figures.

A similar article was featured in *Signs of the Times* in a section regularly devoted to electric signs, and to the manufacturer's advertising man these stories of the big sign are particularly impressive, for he realizes just how



One of the Torches

burning at the same time on Broadway. This is said to be the largest number that any advertiser has had on Broadway at any one time.

"The sign showing the bareback rider was very realistic. The horse galloped furiously, with mane and tail streaming out behind. And the little elephant, a few blocks away, amused the passing throng by constantly spouting yellow streams from its trunk. The man who could walk up Broadway without having his

The Circus Rider Sign

highly electric sign publicity must be rated by these national advertisers to make such an affiliation possible, and the story has its effect on every reader.

This suggests an opportunity for the central station. Every trade paper is continually hungry for news, no matter what its field, and the advertising journals are always interested in photographs and descriptions of new and unique installations of electric display. Why should it not be supplied by the central station who will most benefit by the increased popularity of the medium? Naturally it will do no good to report every big

sign that goes up, for unless there is a new feature or some characteristic that appeals to the reason of the publicity man, it isn't news; it teaches no

The Amusing Little Elephant

new lesson and it carries no impulse. But opportunity is there just every so often, and the address of the ad man's journal is not hard to find.

Use for the Census Taker

The completion of the national census suggests an opportunity for the central station to secure the services of a competent man to compile data as to rewired houses, users of electric irons and the like. In every town in the country right now there are men and women who have just finished compiling local census figures and are well qualified to cover this ground again for the electric light company. There is always more or less difficulty in securing dependable data from unexperienced canvassers, but while his late experience is still fresh in his mind, the local census man can probably handle it quickly, efficiently and at comparatively small cost.

Fargo Company to Serve Farms

Within a short time the Union Light, Heat & Power Company of Fargo, North Dakota, which was recently taken over for management by H. M. Byllesby & Company, of Chicago, will be serving at least a half dozen farms with electrical energy for lighting and power purposes. The Company is now extending its lines for a mile and a half outside the city limits to the County Hospital, and the farmers along the way have shown an eagerness to obtain service not only for lighting but for operating various farm machinery. Large power, such as the threshing machine, will be utilized, although there are many minor machines requiring power. It is the intention of the Union Light, Heat & Power Company to make a thorough investigation of the feasibility of serving farms in the country tributary to Fargo. Experiments which are to be made will no doubt arouse considerable interest.

"Don'ts" for Gas Users

In a recent *Electrical Bulletin*, published by the Hamilton (Canada) Electric Light & Power Co., Ltd., appears the following:—

Don't blow out the gas.

Don't throw burning matches any old place.

Don't expect your walls to keep clean.

Don't think your house looks modern.

Don't fall down the cellar stairs in the dark.

Don't move into an unwired building.

Don't imagine you're enjoying life fully.

Don't blame someone else for all this, but 'phone 3301 and have electric light installed at once.

Signs on Heidleberg Tower

The famous Heidelberg Tower, which, as announced some time ago, to be erected above the Heidelberg Building at the intersection of Broadway, Seventh Avenue and 42d Street, New York City, is nearing completion and electric signs are already being installed.

It is understood that the spaces have been eagerly sought after, and

that this novel sign site will soon be a mass of electric advertising which will dominate the theatre and restaurant section of the city.

A Denver Bank Sign

The first bank in Denver to adopt electric advertising has just installed this large sign. The building stands on a prominent corner and the spectacular sign is creating much interest. The hand is apparently dropping coins into a bank below.

The Denver Gas & Electric Com-

pany say tha this sale was made as a direct result of an article which aspeared in the February, 1909, issue of Selling Electricity. A copy of this article was placed in the hands of the bank officials and aroused their interest and approval of electrical display as a medium for bank advertising.

Flashing the Death Rate

Which Suggests a Central Station Window Display

The following item appeared in a recent issue of the magazine "*Advertising & Selling*":

"A very unusual electric sign is being used by the Committee on the Prevention of Tuberculosis of the City of New York. This sign forms the window display at one of its free exhibition rooms in New York city.

"Though the sign bears but a single electric light, it is attracting almost as much attention from the passers-by as the elaborate Broadway signs. The light is mounted at the top of a sign about three feet high which reads :

EVERY TIME
THIS LIGHT
GOES OUT
SOME ONE IN THE
CIVILIZED WORLD
DIES FROM
CONSUMPTION
2 EVERY MINUTE
120 EVERY HOUR
2880 EVERY DAY
1,000,000 EVERY YEAR

"There is something about this sign that causes people to stand in silent awe and watch the light go out every 30 seconds. It is impressing the serious nature of the disease, and the enormous number of deaths resulting, upon the public mind more indelibly than could tons of literature. Once having seen the sign you are not likely to forget it soon.

"This is but one of the publicity methods that are being used by this organization to spread abroad the realization of the importance of the conflict that is being waged against this dread disease."

Abstract figures make very little impression on the average man or woman because the majority of us think in measures of our own size, but to reduce these figures to the unit and show how often it would happen if spread out over the hours, always brings us

down to the fundamental and makes a lasting impression.

In this demonstration of the toll of the White Plague is a suggestion for the central station window. Make a count of the traffic on the various streets in the business section of the city so that you are in position to tell every merchant just how many people pass his store windows during the day and evening, how often he can be assured that the attention of one prospective customer may be attracted to his display by the proper mediums of electric advertising. Then install in the window a strong red lamp in a large Holophane reflector, end on to the public, placing beside it a large card sign reading:

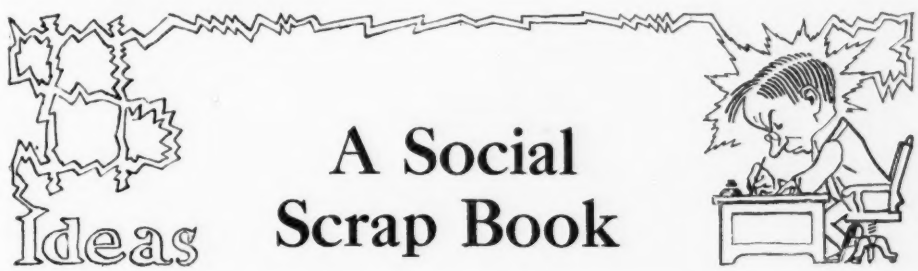
"By Actual Count we have found that on an Average Day 22,457 people —men, women and children over 15 years old—pass up and down Main Street between Elm and Water Streets from 6 A. M. to Midnight. That means just 1244 people every hour, 20 every minute.

"Watch that light! Every time it flashes 10 possible customers pass by the windows of every merchant whose store is in that section.

"Good window illumination and an electric sign will bring more of these people into your store than any other medium of advertising.

"Watch the light to-morrow and see what the traffic is on Lincoln Street."

In three days a good, careful counting man should be able to gather enough data on various streets to give reliable approximate figures sufficient for the purpose and if the demonstration is cleverly staged it should create a deal of interest and good advertising. Coincident with this window display, the same figures may be featured in the newspaper advertising and by the salesman, and the newspapers will be only too glad to feature the story in advance.



A Social Scrap Book

One of the most progressive of the southern central stations has begun the keeping of a scrap book containing the newspaper announcements of all kinds of social functions which promise the consumption of more than the usual amount of current, through the general illumination of the house until a late hour. Such a function will often increase the lighting bill materially and it is not unusual for the consumer to drop in a month later and question the size of the bill, when by referring to the scrap book it can be shown that there has been an obvious cause.

This scrap book also serves as an advance notice to the heating appliance salesmen to call on the customer suggesting that an electric cigar lighter be installed in the smoking room for the occasion and that fans, etc., will be an added touch.

An Electric Team Haulage Service

An Interesting System Installed on a West Seattle Highway

Every city built on a hill or hills, in fact any community where there are heavy grades affecting the local traffic conditions, finds itself seriously handicapped by the increased cost of all teaming and grade transportation.

Teaming is an ever-present expense that figures on nearly every bit of construction that is undertaken, its cost being determined by the distance of the haul and by the maximum grade over which the load is to be pulled. To overcome grade, long detours are frequently made and the cost is increased by the time consumed by the team and driver, or on long hauls the load is often divided and the team returns to bring up the portion, or portions, left behind. But the maximum load that any team can haul is determined by the load that the team can pull up the steepest grade. Interesting economies are effected in some cases through the use of motor vehicles, but be the method what it may, the problem is always there.

In a recent issue of the *Pacific Builder and Engineer*, Mr. Clancy M. Lewis, S. B., describes a very interesting experiment which is being tried in West Seattle, Washington, where a team haulage cableway, driven by an electric motor, has been installed under a short-term franchise, to haul horse-drawn vehicles up a long, heavy grade on a much traveled highway. Mr. Lewis says: "The promoters of the enterprise believed they saw in a mean rate between what it cost to team over a possible grade by a circuitous route to the top of the West Seattle hills and the cost of teaming direct, grade permitting, a reasonable profit on the investment required to install a cableway that would make the shorter haul possible. The company formed, employed W. Montelius Price company, electrical and mechanical engineers, to design the conveying system. The factors in the problem were: A varying grade from 15 to 20 per cent; three turns in the route, one approximating 90 degrees; a haul of 2,200 feet; and a speed equal to that of the gait of an ordinary draft horse.

West Seattle Team Haulage Cable Way in Operation

"The system, as installed, is similar to the ordinary street cable road in that it uses a grip that can be attached to a cable that constantly operates in one direction. This cable is run by an

engine that has the same features as the regular cable engine, with the exception that it uses a motor as the driving power in place of the steam engine that is common in this work. The slack of the cable is taken up by an automatic tightener, the power house being located at the top of the hill, and the cable traveling over idlers in the middle and just beneath the surface of the road.

"The similarity ends here, however, for the grip instead of being operated by hand, is placed on the cable when the cable is idle, and the rope that is fastened to the grip is attached at the other end to the axle of the wagon that is to be hauled up the hill. The engine is then started, and the horses are left in their regular position, and serve to steer the wagon up the hill as the grip attached to the cable pulls the load. The speed of the cable being that of the horses when they are walking without a load, allows the horses to walk in front of the load without trouble or attempt to pull. When other wagons are at the foot of the hill, the cable is stopped, the new wagon attached and the cable then started again. The engine is equipped with a device preventing the cable from running backwards unless it is driven by the motor.

"The capacity of the 3-4 inch steel cable is given at six 3-ton loads, plus the wagons, and the time consumed in transit is about ten minutes. The charges, however, are not based upon tons per load, but upon the number of horses normally pulling the load; that is, the team haulage company will convey to the top of the hill any load that a 2-horse team can pull on the level for 60 cents, a 4-horse load for $1.20, and a 6-horse load for $1.80. During the first week of operation

View of Team Haulage Cable Way

The Power House, Automatic Tighteners and Grade

113 teams were conveyed up the hill.

"The practical operation of this haulage system with the patronage it is receiving and the satisfaction that it is giving should prove an incentive to further installations of this character in every city where there are similar traffic problems. The system has been inspired by local conditions, and is deserving of some credit for originality in the adaptation of the principles of conveying to a new purpose. There is but one other existing haulage of this character; it is located in Pittsburg, has a straight pull and the distance covered is less than half the one at West Seattle."

The Commercial Club vs. the Council

Glenn Marston Talks Before the Citizens of Galva, Ill., and They Vote for Progress

The doings of the Easton Board of Trade have been chronicled in these columns from time to time, and it has seemed that a Pennsylvania town of 35,000 was doing pretty well to draw two or three hundred men to its meetings. Now comes a little city of a tenth the size and shows an equally live and progressive organization known as the Galva (Ill.) Commercial Club.

With only 3,500 inhabitants, Galva has not appeared attractive to central station investors, particularly since there is a municipal plant which does the street lighting, though the Illinois law forbids municipal plants from going into the commercial light and power field. The Galva Commercial Club shares with many others the opinion that Galva is a good location for industries doing business in Central Illinois; but, sad to relate, they have been unable to say "yes" when the question is asked—as it has been in 97% of its inquiries—"Have you electric light and power available for us?"

The Commercial Club has the confidence and backing of the people of Galva. Through its efforts the city boasts of three parks and many other civic improvements, but the city cries out for new industries, so the Commercial Club set to work to improve the business status of the city. They realized that they must have electric power and they started after it.

The power question was complicated, however, by the municipal plant, and there are always friends for the worst municipal plants, so in order to bring the situation squarely before the people, the Commercial Club gave a "Dutch lunch" to which all voters were invited, most of whom came. There were as speakers, C. W. Hadley, District Attorney for De Page county, and Glenn Marston, of New York.

Mr. Hadley addressed the gathering on the necessity of suitable paving and sewers, showing what had been done in other Illinois cities. Following him came Mr. Marston, who played the part of power advocate, winning the ears of the three or four hundred listeners present to such a degree that they voted *en masse* in favor of securing power service and consolidating the municipal plant therewith. Everybody voted except the members of the city council, toward whom the resolution was directed, and one man who had locomotor ataxia and couldn't get up.

"Two things are necessary for the growth of a city," said Mr. Marston. "They are public improvements and public utilities. They go hand in hand, and no city succeeds without the best of both. You have already heard about the need of public improvements, and I shall confine myself to the part played by public utilities—particularly power—in civic development. In the last twenty-five years

electric power has grown to be the greatest single factor in industrial progress. It has had an incalculable beneficial effect on both capital and labor.

"Electricity in the form of power is attractive to capital, for it lowers investment charges against a new industry. It makes unnecessary all the cumbersome and expensive paraphernalia incident to the erection of a steam plant. It eliminates shafting and belting, thereby cutting down the employer's liability risk, and I could tell you many more reasons why electric power is attractive to capital.

"On the other hand, labor has been no less fortunate in its benefits from electric power. To the introduction of electricity can be traced increased wages, shorter hours of labor, and a large increase in the safety of employees. It is therefore an important matter for every city seeking industries to secure an efficient and reliable source of electric power.

"But the power company plays an even greater part in the development of a city, and one which I venture to say very few of you have considered, for while it is important to the city at large to secure new industries, it is far more important to the power company, because its prosperity, its very existence, depends upon the number of industries to which it can sell power. By securing a power company for Galva, you men of the Commercial Club will more than double your organization's efficiency.

"The power company is the only mercantile establishment—I call it mercantile because it sells power as a commodity—which cannot deliver its goods to any customer wherever that customer may be located. The grocer, the lumberman, your well known rug-rack maker can all make sales from Maine to California. But the power company, instead of doing that, must induce its customers to move within its own area. The customers must come to the company. It is therefore a selfish interest, if no other, which will make your power company get out and hustle for new industries and more people in Galva.

"As you get new industries established they will attract new residents—and the average earning capacity of each of these new residents is about $600 a year. Every new employee coming to Galva through the introduction of electric power puts $600 into circulation, of which the butcher, the grocer, the banker, and every merchant in town, will get his share. One new factory employing ten men means $6,000 or more a year for the merchants of Galva. Bring a thousand new workers to the city and see the effect on the prosperity of everyone of you here.

"This brings us to a consideration of the best means of securing such a civic necessity. You all know that it is impossible to do so with the present municipal street lighting plant operated as a separate institution. If you are to secure power a consolidation must be effected between the power company and the city plant. It may be that the best way would be to sell the plant; for, as has been said tonight, Galva needs paving and sewers, and the money secured from the sale of the city plant could be used in making these improvements, while I feel perfectly safe in saying that your street lighting could be done for less money than at present, at the same time giving you more lights than you now have.

"I had occasion to remark the other day that town boosters are of two kinds—those who throw their hats in the air and shout for a bigger and busier city, and those who hang their hats behind the door and go to work. You have shouted yourself hoarse tonight. See what you can do tomorrow."

Following the address of Mr. Marston came the resolution calling upon the council to investigate the best method of consolidating the municipal plant with some source of power for commercial purposes "as may be for the best interests of the city at large." Practically half of the total number of

voters in Galva were present and their unanimity in favor of the resolution shows clearly the public attitude toward municipal light. And while the man with locomotor ataxia couldn't get up in time to vote, he spoke for ten minutes endorsing the suggestion of the gentleman from New York.

Clock Dial of Lights

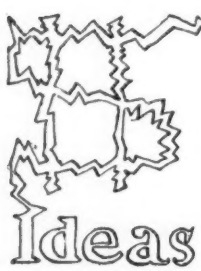
The Seth Thomas Clock Company of Thomaston is installing a five-ton four-dial clock in the United States Post Office, Custom House and Court House at Newbern, N. C., which has a feature never used. The dials, instead of numerals to indicate the hour, have twelve opalescent glass disks which show white in the daytime, and at night an electric light from an aluminum reflector is behind each disk. There are windows in the building behind each dial to permit the renewal of the lights, and the dials will revolve so that the lights can be reached. A hand wheel and gearing are provided behind each dial to revolve it, also a locking device to hold the dial in place after a change has been made. The dial frame is of wrought iron, with cast metal circles to hold the disk and minute spaces.

The revolving dial is a distinct innovation in dial construction, and this is the only clock in the world known to have this feature. The hands are made of aluminum, and each carries an electric light near the point. There is also an electric light at the hub of the hands. These lights show red at night to be easily distinguished from the dial lights. In the day the time can be read as by an ordinary clock, but at night it is read by the location of the red lights in relation to the white lights. The four dials can be read at a distance of two miles.

J. J. Dawes Joins Stone & Webster

Mr. J. J. Dawes, for some time a member of the commercial department of the Corning (N. Y.) Gas & Electric Company, has been appointed by Stone & Webster of Boston, to the position of Commercial Manager of the properties located at Pawtucket, Woonsocket, Lincoln, Cumberland and Central Falls, Rhode Island, and Blackstone, Mass.

Mr. Dawes, prior to joining the Corning central station, was identified in turn with The American Gas & Electric Co., Henry L. Doherty & Company, and The American Light & Traction Company.



FANS FOR THE LUMBER DEALER

GEO. W. BARLOW
General Electric Co., Chicago, Ill.

March brings joy to the heart of the washerwoman and to the lumberman, not because spring has appeared, but because March winds will dry out clothes and season lumber faster even than those " blood-heat " calms of midsummer. By installing an exhaust fan so inverted as to blow into the lumberman's dry kiln, power men can eliminate one of the most difficult features of securing his entire load for the central station, as it will enable him to do away with the boiler plant almost entirely.

Smoke Inspector Endorses Electric Power

The official smoke inspector in Providence, R. I., recently turned in his annual report. In it appears the following comment on the good influence of the central station toward the abatement of the smoke nuisance:

"In electric lighting and power plants the loads vary to such an extent that it is necessary to have a certain number of boilers with banked fires during part of the day ready for the peak loads. These boilers throw off heavy smoke when put in service; putting them in commission is practically equivalent to building new fires.

"Effort and expense have not been spared at the plant of the Narragansett Electric Lighting Company to reduce the volume of smoke; and the improvements being made in engine and boiler rooms promise in the near future still further reduction of smoke.

"The increasing use of electric power is removing a large number of of small steam plants from the business district. These boilers usually are located in old buildings, where draught conditions and other defects make it impossible to apply any of the modern devices for abating smoke. In these cases it has been the policy of the inspector to confer with the owners of the buildings as to the best method of abolishing the smoke nuisance."

Stone & Webster Data Book

Mr. H. J. Gille, Commercial Agent of the Minneapolis General Electric Company, has been chosen by the Stone & Webster interests to compile and edit a data book for the use of the representatives of all the Stone & Webster companies. Material is being sent in from all quarters and "loose leaf" sheets are being printed covering the various subjects. These sheets will be issued periodically, so that the data book will be cumulative. The sheets will be bound in leather covers, seven inches long by four inches wide.

More "Uses for Electricity"

A certain electric plant manager tells of the following things which one kilowatt-hour of electricity will do:

Saw 300 feet of timber deal.

Clean 5,000 knives.

Keep your feet warm for 5 hours.

Clean 75 pairs of boots.

Clip 5 horses.

Warm your curling tongs every day in the year for 3 minutes and twice on Sundays.

Warm your shaving water every morning for a month.

Run a plate-polishing machine for 21 hours.

Run an electric clock for 10 years.

Iron 30 silk hats.

Light 3,000 cigars.

Knead 8 sacks of flour into dough.

Fill and cork 250 dozen pint bottles.

Supply all the air required by an ordinary church organ for one service.

Pump 100 gallons of water or other liquid to a height of 25 feet.

Run an electric piano for 10 hours.

Lift 3 1-2 tons 75 1-2 feet in 4 minutes.

Give you 3 Turkish light baths.

Keep three domestic irons in use for an hour.

Keep you warm in bed for 32 hours.

Warm all the beds in the house, by a warming pan, for a fortnight.

Give you a fire in your bedroom for an hour while you are dressing or undressing.

Boil 9 kettles, each holding 2 pints of water.

Cook 15 chops in 15 minutes.

Run a small ventilating fan for 21 hours.

Run a large ventilating fan for 6 hours.

Keep your breakfast warm for 5 hours.

Run a sewing machine 21 hours.

Carry your dinner upstairs every day for a week.

Carry you 30 times from the bottom of the house to the top, 80 feet each journey.

Recommendation—Buy some kilowatts, and try them out yourself. —*Edison Round Table.*

SELLING ELECTRICITY

AUGUST, 1910

THE AUTO OPPORTUNITY

"The best undeveloped prospective load today for central stations is the electric vehicle."

That statement, made at the St. Louis Convention of the N. E. L. A. by Wm. H. Blood, Jr., past president of the Association, and a man intimately acquainted with the electric automobile situation, should cause every central station commercial man in the country to "take notice."

Consider: A one-ton vehicle equals 38 flatirons as a current consumer; a two-ton truck equals 50 flatirons; a five-ton truck equals 75 flatirons. Or, to get at the same thing another way, a pleasure vehicle gives the same gross income as three ordinary residences, while a 1000-lb. delivery wagon equals 13 residences, with the advantage that the vehicle load is seldom, if ever, on the peak. With comparative figures like that, does it not seem that the vehicle is an opportunity that has been to a considerable extent overlooked by the average central station?

The first step toward promoting the use of electric cars in any locality should be their adoption by the central station itself, just as the first step in an electric sign campaign is the erection of a sign over the central station office. It's mighty difficult to persuade a buyer that he ought to use something that the seller is afraid of. This point is realized by the New York Edison Company, which has seventy electrics; by the Binghamton Light, Heat & Power Company, which has six machines, and by a score or so of other progressive central stations, large and small.

The next point is the establishment of at least an advisory engineering department or vehicle inspection department which will supervise in some measure the management of electric cars within the company's territory. It is not thought necessary, either by the automobile manufacturers or by the more experienced central stations, that the company should itself maintain a public garage, but the inspection and advisory work are absolutely essential. At Rockford, Ill., for instance, where the record for electric vehicles is .035 per capita (or 3 1-2 machines to every 100 inhabitants) the Rockford Electric Company ran a garage for some time, but has now turned the business over to the private garages. The Columbus (Ohio) Railway and Light Company had a similar experience. The Rochester (N. Y.) Railway and Light Company maintains an inspection department and in addition carries a large assortment of spare parts of all makes and types of cars to facilitate repairs and make the service as near accident-proof as possible. The New York Edison Company and the Brooklyn Edison Company both maintain engineers and battery experts, whose services are at the disposal of vehicle owners without charge.

On the other hand, the Union Electric Company, of St. Louis, has gone into the vehicle business, securing the agencies of several standard cars and a battery, and conducting a large public

garage for profit. This company's present garage is essentially for pleasure vehicles, but there is now being erected one exclusively for trucks which will have a capacity of 150 machines. The Union Company points to the fact that the 400 electrics sold in St. Louis during the past four years are due to these aggressive measures. While working in harmony and close co-operation with all electric garages and vehicle agents, the company has made a paying proposition out of its own agency, and says, "The only way to build up the electric automobile is to establish a competent electric auto department in the hands of men thoroughly acquainted with the work they are doing, and then show the public what the electric autos will do when properly applied and intelligently cared for."

The salient feature of this work is not, as too many—even among electrical men—suppose, to repair broken-down vehicles; on the contrary, the work required of the central station is educational and preventive. For example, in both St. Louis and Rochester, an important feature of the vehicle department's work is to keep a watchful eye on the bills of all who charge their machines by rectifiers. If the bills are excessive, it is found that the customer is improperly charging his battery, or that the battery needs washing, or that there is a leak somewhere. It is to the company's great interest to correct such errors, at once. Or if the bill is low, it may be found that the car has been discontinued for some slight trouble, in which case the inspector is able to get it into commission without delay. In the words of Mr. C. E. Michel, manager of the Automobile department of the St. Louis Electric Company, "It is our policy to throw every safeguard possible around the electric machine, doing all in our power to see that the owner gets satisfaction out of his car." So the inspection department is like the Chinese doctor; it earns the most when its patients are in good health.

Those central stations which are making the most out of the electric vehicle do not consider it necessary to spend large amounts in advertising. Stress is laid upon the value of earnest personal solicitation and active, disinterested co-operation after the machine is purchased. A favorite means of advertising is by the use of maps showing public charging stations and good roads. Circular letters are popular because their insistent pounding upon specific points gradually wears a hole through the reader's prejudice. Lists of users who are getting satisfactory service out of their cars are also effective, especially in opening a way to the attention of merchants, express officials, and manufacturers.

The introduction of electrics is slow work, but not difficult, and once a start is made the business grows almost of itself. The start is always hard, and for good reason—people are *ignorant* of the *present* status of electric vehicles. They do not realize that *to-day* these cars are more dependable, just as sturdy and a whole lot nearer fool-proof than any other means of city or suburban transportation. They expect touring-car mileage, for which they have absolutely no need, and racing-car speed, which is against the law. They apparently want perpetual motion, forgetting that a team of horses requires more actual care and labor than a pair of three-months-old twins.

Central station men are not exempt from this criticism. Too many men whose business it is to know better, are as ignorantly prejudiced against the electric vehicle as is the agent of a gasoline car. This is wrong—and expensive. Mr. Blood says, "The best undeveloped load today for central stations is the electric vehicle." It is up to the central stations to get that load.

ON SWEEPING VACUUM CLEANERS

The other day on Broadway, New York, a group of interested pedestrians were standing before a show window in which there was an attractive display of vacuum cleaners. The machines were well arranged, with cards explaining the uses of the various tools for cleaning hard wood floors, draperies and so on. Suddenly the little door opened in the back of the window and in stepped a very impressively uniformed negro porter bearing a floor brush and a dust pan, and the spectators waited expectantly for the suggested demonstration of the comparative efficiencies of the old and new methods of sweeping. Not so, however, for the "demonstrator" set to work with his brush and pan to dust off the vacuum cleaners themselves, and sweep out the window. Some saw the joke and laughed and some wondered why; but the result was a distinctly adverse impression in the minds of a number of logical prospects.

This suggests the old story of the fountain pen salesmen who landed a large initial order from the manager of a stationery store only to lose it because he made out his order blank with a pencil. You can't help feeling nervous when the cook won't eat her own stew, and the principle applies right down the line, yet how many central stations are there who rely on horse-drawn vehicles exclusively for both heavy trucking, reading meters, and for the manager's use; yes, and how many cases do *you* know where the central station maintains one or several gasoline cars! Is it not very much worse in its impression than taking a broom to the vacuum cleaner display?

And while we are asking questions, how about that central station salesmanager (we name no names) who lives in an unwired house and burns gas for illumination where all the world may see? What do his doubting prospects naturally think of that?

Shoemakers' children can go unshod for all we care, for modern pavements force our hand and we do not need the example to convert us to the use of sole leather; but when it comes to purchasing a washing machine or a vacuum cleaner, and you say to the electric light man, "Well, suppose I drop in at your house and see how it works," and he replies, "Better come to the office, I haven't one at the house," you are inclined to wonder why. Most people think that current should cost nothing to the electric light man, for it is there in the wires anyway, and naturally he takes all he wants; therefore they can't quite see why he does not utilize the electrical servant to the utmost.

This very phase of the sales problem, the potency of example, has been too long neglected by central stations, and it is worthy of a good deal of thought.

Do you sweep off your vacuum cleaners with a broom?

MORE TROUBLE WITH THE PRINTER

Just after our June issue had gone to press, the news reached us of the interesting changes in the commercial organization of the Susquehanna Railway Light & Power Company, of New York City and the United Gas Improvement Company, of Philadelphia. In short, Mr. A. V. Wainright, for sometime in general charge of commercial matters for all the Susquehanna properties, has accepted a similar position with the United Gas Improvement Company, and Mr. H. M. McConnell, who has been serving as Manager of Commercial Department with the Colorado Springs Electric Company, has succeeded Mr. Wainright.

It was unfortunately too late to get this item into the June issue, so a notice was prepared and run into type for insertion in July. But who can forsee and forfend the concentric workings of a printer's mind! In the make-up, there was too much metal for one of the forms, and his supply of patent squeezable rubber type, being entirely used up in the "Social Happenings" column of the local paper, he had to take something out. But the choice! Having no friends himself, he thought nobody would care what happened to Wainright & McConnell and killed the ill-fated item.

We offer this explanation to Messrs Wainright and McConnell and to their friends, though these "typo-post mortems" are hard to write and probably harder to read, when you don't have to. But all central station commercial men are interested in the doings of these two organizations and in the "men behind".

Mr. Wainright began his central station administration work as Manager of the Mohawk Gas Co., Schenectady, N. Y., after extensive operating experience with the Connecticut Ry. and Lighting Co. at Waterbury. He is a graduate of Stevens Institute of Technology.

Mr. McConnell began as a very successful power salesman for the New York Edison Co. and has continued and broadened his record of results gained as manager of the commercial departments in Elmira, N. Y., and Colorado Springs, both Susquehanna Co. properties.

Index to N. E. L. A. Proceedings

The National Electric Light Association has just issued, in a limited edition of 1,000 copies, a complete cross-reference index to the reports of all the Conventions from 1885 to 1909, inclusive. This edition is being distributed to all the member companies down to 1909, and to the officers of the Association who filled executive positions during the period. This plan leaves a few copies on hand for general distribution, in response to inquiries from libraries and other institutions that may happen to have a full set of the *Proceedings*. It is obvious that the index is of little direct use to those who are without a full set of the *Proceedings* to which the index makes reference; while to the fortunate possessors of a set the index is a key to a vast accumulation of immensely valuable data.

The book is uniform in size and binding with the *Proceedings*, and fills 243 pages. It includes a general index; a list of 24 classes into which the topics are divided; an excellent synopsis of papers and discussions; an authors' index; a title index. Several hundreds of important topics are noted, with treatment or discussion by hundreds of authors, and the book comes as a fitting finale to the first quarter century of the Association's operations in the central station field.

A Denver Window.

Here is a striking example of second story window lighting in Denver, Col., that suggests the opportunities awaiting the central station in the development of upper story show window illumination. The Denver Gas & Electric Company has been making a strong campaign for this business throughout the shopping section of Denver and has been extremely successful. This photograph shows the night effect of one of the best installations effected.

In speaking of this installation, Mr. Clare N. Stannard, the secretary of the Denver Company, said, "The

lighting is done by means of trough reflectors placed at the bottom of the show windows, the automobiles standing in a room especially prepared for them and the dimension of the room being about 50 feet in length, 25 feet in width and 10 feet high. The garage is located near a flatiron corner and all the street cars from the south and east portions of the city pass by this place, consequently the automobile people receive a vast amount of splendid advertising and best of all, they are delighted with the results obtained for the money expended in this form of advertising.

"It might be interesting in connection with this matter for me to mention that this company recently purchased an electric truck from the Studebaker people, to be used in making lamp deliveries in this city."

Grand Forks Wakes Up

The Red River Power Company of Grand Forks, N. D., has announced substantial reduction in gas and electric rates, and the fact that improvements aggregating upward of $100,000 will be made this season. The Red River Power Company is the new name of the Grand Forks Gas & Electric Company, which was purchased recently by H. M. Byllesby & Company of Chicago. The principal improvements outlined include the installation of a 750-kw. engine generator unit, the construction of from 20 to 25 miles of electric pole line distributing system through the residence district, the construction of nearly four miles of new four-inch gas mains, and special inducements to obtain additional consumers of gas and electricity. In the past there has been practically no electric service for residences in Grand Forks.

Tarsus Lighted by Electricity

The ancient city of Tarsus, in Asia Minor, from whence came "Saul of Tarsus," later St. Paul, has recently been lighted by electricity. In reporting this fact, Consul Edward I. Nathan, of Mersine, says the power is taken from the rapidly flowing Cydnus river. About 1½ miles from the city an 80-horse-power turbine is made to drive a large dynamo, which furnishes sufficient power for 1000 lamps of 16 candlepower each; 450 are now used to light the streets of the city and the remainder will be furnished to private consumers. It is proposed to extend the electric-lighting system to Adana and Mersine, the power to be likewise furnished by the Cydnus river and transmitted by wire to these places.

Ohio State Convention.

The sixteenth annual convention of the Ohio Electric Light Association was held at Cedar Point on Lake Erie, July 26, 27, and 28, 1910. The registration totaled 355, far beyond that of any previous convention. President J. C. Rothery of East Liverpool presided and the following papers were presented:

"Low-Pressure Turbines and Their Operation," by W. C. Anderson, Canton.

"Turbine Troubles," by Frank Brosius, Columbus.

"What Progress is Being Made in the Introduction of Electric Vehicles in Ohio," by J. T. Kermode, Cleveland.

"Methods of Obtaining New Business in Cities of Fifteen Thousand and Less," by L. A. Pettit, Jr., Middletown.

"Experience with Series-tungsten Lamps for Street Lighting," by Claude C. Smith, Bradford.

"The Relation Between High-Efficiency Lamps and Rates for Energy," by E. L. Booth, Bellaire.

"Securing Off-Peak Load," by Harry G. Glass.

"A Motor Service Rate," by B. H. Gardner, Dayton.

The officers elected for the ensuing year were: President, E. H. Beil Youngstown; Vice-President, W. C. Anderson, Canton; Secretary and Treasurer, D. C. Gaskill, Greenville; Executive Committee, E. A. Bechstein, Sandusky, W. S. Townsend, East Liverpool; Sheldon Roberts, Columbus; W. E. Richards, Toledo; J. C. Martin, Wilmington.

Better Lighting in Faribault

The Consumers Power Company has installed and placed in operation at Faribault, Minnesota, an ornamental curb lighting system covering eleven blocks in the business district. When H. M. Byllesby & Company of Chicago purchased the gas and electric properties at Faribault a contract was made with the city for the installation, operation and maintenance of the ornamental lighting. There are 106 standards, each bearing 3 40-watt tungsten lamps and all three lamps burn from dusk to midnight and one lamp all night. Citizens of Faribault are said to be very pleased with the installation and its illuminating effect.

New Electric Vehicle Association.

The manufacturers and dealers in electric vehicles and storage batteries doing business in Chicago have organized the Chicago Electric Vehicle Manufacturers' Association, its aim being the systematic instruction of vehicle owners and garage men in the care and treatment of the car and battery.

The president of the association is L. E. Burr, of the Woods Motor Vehicle Company; the vice-president, Ralph Temple of the Baker Motor Vehicle Company; the secretary, G. H. Atkin of the Electric Storage Battery Company, and the treasurer, J. C. Cooly of the Waverly Company.

The Studebaker Automobile Company, the Rauch & Lang Carriage Company the Babcock Electric Carriage Company, the Anderson Carriage Company, and the Columbus Buggy Company are represented on the board of directors.

Electrical Progress Department

The Federal "Win-do-lite" Sign

The rich color effects in leaded art glass obtained in the expensive leaded art glass shades and domes used in modern lighting have been applied to store window illumination by a few large stores, at a great expense. Nothing is more pleasing to the eye than the soft shades so exquisitely blended by the modern manufacturers of art glass, and its use in exclusive shops has given them an artistic at-

mosphere obtained by no other means of decoration. The high cost of special leaded glass designs, however, and the special installation necessary for their exhibition has prohibited their general use.

By combining the source of window illumination with an art glass screen, this obstacle has been overcome in the Federal "Win-do-lite" sign. The letters are made in colors contrasting with the background and the color combinations are practically unlimited, permitting the use of a color scheme in harmony with any decorations. The letters are all standard in size and slip easily into the grooved brass framework. This allows a complete change of reading by the insertion of different letters and the entire color scheme may be varied by using a different set of plates, while the sign has the appearance of a permanent made-to-order fixture, its interchangeability not being apparent to the observer.

The necessary wiring for the window lighting is all that is needed for the "Win-do-lite" sign. The reflectors, being adjustable to any angle, throw the light to best advantage upon the window display, the small amount of light which escapes through the reflectors being all that is necessary to illuminate the sign. Hanging close to the plate by heavy brass chains, it occupies space that cannot be utilized for any other purpose and it is easily cleaned and re-lamped, since the sockets are readily accessible.

The sign is made of light, strongly-trussed steel frame-work with brass-bound guide, at top and bottom to hold the interchangeable letter plates. The lamp sockets are placed on a tube, which is used as a conduit for all the wiring and can be clamped so as to adjust the row of lamps to any angle. The letter plates are "tongued and grooved," preventing any light getting through between and the curved supporting brackets at the back are out of the line of light and throw no shadows on the sign. Several color schemes for the letters have been standardized and others can be supplied as ordered. The "Win-do-lite" is made by the Federal Electric Company of Chicago.

Electric Sealing and Cancelling Press

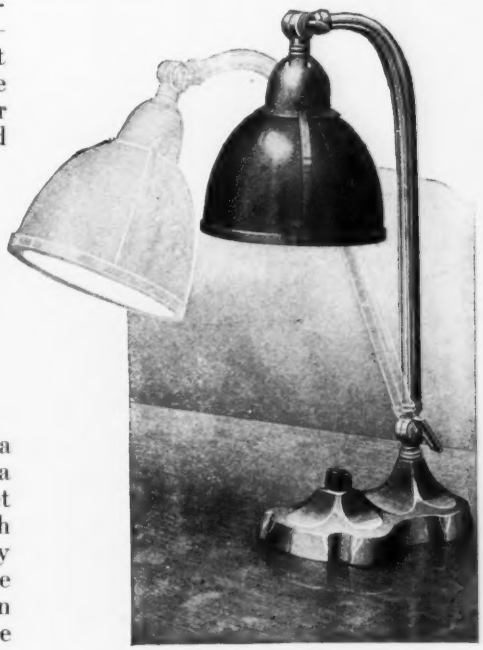
Here's a little device that will not make a perceptible showing in the electric light bill but will give to many a bank reason to be glad they have electric service. Although a brand new invention it is already in use by some seventeen different companies. The Electric Multiple-Seal Press, as it is called, consists of a strong electro magnet which closes the jaws of a seal press or a cancelling punch automatically as soon as the stock certificate bond, check or other paper is placed in position. At the side of the jaws is a pair of guides—seen projecting from behind in the illustration—on which slides an adjustable contact block providing means for varying the position of the seal. When the paper is fed between the guides and pushed

back as far as it will go, it closes a spring contact thereby operating a relay and putting the electro magnet of the press into circuit. After each impression, the jaws open immediately and it is claimed the impressions are more uniform and distinct than can be obtained by a hand press. The dies are interchangeable, so that one press may be used for as many types of seals or cancelling designs as desired.

A lighting man, Mr. William C. Pratt, Vice-President of the National Light, Heat and Power Company, New York City, as well as an officer in many of that syndicate's subsidiary companies, and Mr. A. J. Pates, electrical engineer with the New York Telephone Company, invented the press. The device is being handled by the Electrical Installation Company, 30 Pine Street, New York. It is of interest to every bank or financial institution which has anything to do with issuing or transferring stocks or bonds, as it is one of the greatest labor and time savers ever brought to their attention—Ask them!

A New "Emeralite" Portable

There seems to be no good reason why the small portable shown in the accompanying illustration should not be a money-maker during the summer months if properly pushed. The screened-in porch is being more and more used as a hot-weather sitting-room and the oil lamp is too often



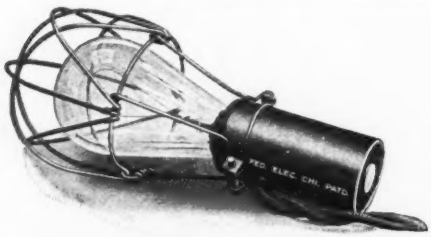
among its fittings. In the Emeralite Portable made by H. G. McFaddin & Co., 40 Warren St., New York, the well-used argument of coolness is much strengthened by the soothing rich green light given by the shade. The lamp can be universally used about the home or office as the swivel at the base permits its adjustment to any position. It is equally well-adapted to desk, table, piano or wall. The emerald shade is lined with opal glass which gives a clear bright illumination without streaks or spots and

the smooth reflecting surface is claimed to remain permanently free from dust. The switch in the base is a great convenience, particularly when the lamp is used on the porch or as a reading lamp by the bedside.

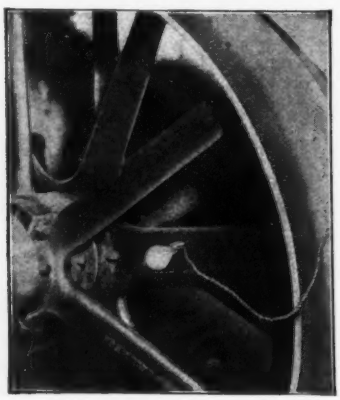
The portable is simple and artistic in design with a heavy base that gives it stability in any position. Either tungsten or carbon lamps may be used. Its price is low enough to permit samples being placed on trial in the same manner as flatirons with good prospects of as high a percentage being retained. Is there not an opportunity here to push a few more kilowatts onto those slack summer circuits?

A Magnetic Lamp Socket.

The accompanying illustration shows an ingenious exploring lamp for automobile work for machin-



ists' and other uses. It has in the base an electro magnet, the circuit of which is independent of the lamp cir-



cuit and retains the lamp in position if the filament burns out. The socket can be attached by a touch to any iron or steel work and remains at any angle until removed by a slight pull. It places the light exactly where wanted and leaves both hands free. The illustration shows it mounted on a fly wheel and suggests its many applications in making repairs on engines, boilers or any iron or steel work. It can also be used on lathes, punch presses, drill presses and other machinery. It is furnished with or without the lamp guard shown in the cut of the socket.

Hughes Electric Cookstove

An electric stove designed to do all the work of the ordinary coal or gas range has been placed on the market by the Hughes Electric Heating Co., 226 West Superior St., Chicago. The day when the flatiron, disc and chafing dish were practically the only electric heating conveniences within reach of the general public has passed with the readjustment of rates for current, the introduction of special heating circuits and meters and the perfection of the heating apparatus

itself. The Hughes Cookstove is substantially made for hard, everyday usage with steel body and legs, finished in hard baked japan and closely resembling the familiar gas stove. Costing no more than gas or gasoline stoves of equal capacity the lighting company has not the objection of high initial expense to overcome when placing them, and as their operation is even simpler than a gas range the

housewife is easily assured of her ability to run one.

The stoves are made in three sizes, having one, two and three "burners," respectively. The two and three burner stoves have a shelf supported by a back plate about 16 inches above the stove top. The heating elements are of a patented non-oxidizable alloy held in a disc of special composition 8½ inches in diameter. They are guaranteed by the maker for one year and new ones can be easily installed by the customer. Central stations are supplied with extra heating units for renewal purposes to prevent the delay of sending to the factory.

Below the stove top and heating elements is a large warming oven which stays hot long after the burners are turned off, retaining sufficient heat to keep food warm until needed. A special steel heating oven, heavily enameled and large enough for baking bread and for all kinds of roasting is is also furnished. This oven is placed over the heating elements when in use.

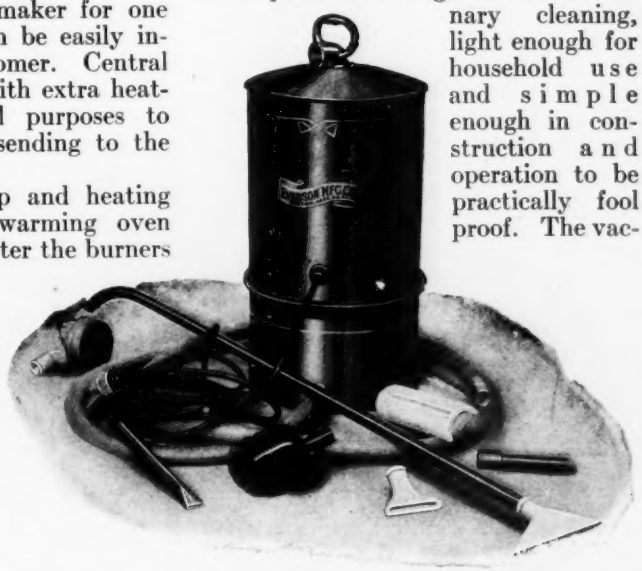
The heat is instantly controlled for each burner by a separate three-heat switch on the front of the stove. The power used is:

1st heat or low, 110 watts
2d heat or medium, 300 watts
3d heat or high 600 watts

It is claimed for the Hughes cookstove that it produces quicker results with less consumption of current than other similar devices.

An Efficient Vacuum Cleaner

The Everson vacuum cleaner, shown with its equipment of tools in the accompanying illustration, is claimed to be powerful enough to do all ordinary cleaning, light enough for household use and simple enough in construction and operation to be practically fool proof. The vacuum is obtained by a positive-acting bellows pump operated by a 1-6 h.p. Holtzer Cabot motor and sufficiently large to displace a generous volume of air at each stroke. In this way a very efficient "working vacuum" is obtained which combines the charac-



Grooved Skeleton Letters

Angle Iron Frame 677 Lamps

Electric Signs Like This One are Erected by Us in Any Part of the Country.

HALLER SIGN WORKS (Inc.)

704 So. Clinton Street, Chicago

teristics required for all kinds of renovating, cleaning, dusting, etc. The pump operates at a slow speed, thereby making its operation practically noiseless and free from vibration, and greatly increasing its durability.

The case is made of vulcanized fibre, light, strong, a non-conductor of electricity and fire proof. The total weight of the machine is but 35 pounds, which makes it easily portable and has a very marked tendency to increase the hours of use.

The machine is made by the Everson Manufacturing Company, 34 Oliver St., Boston, Mass. The manufacturers have an attractive financial proposition for the central station, whether the cleaners are bought for resale or to rent out by the day.

Wanted—An experienced electric power salesman, one who combines a good engineering training with a capacity for successful salesmanship. To the man having these qualifications and who can show a good sales record, an exceptionally good opportunity is offered. Territory to be covered is close to Chicago. Satisfactory salary to right man offered.
Sales Engineer, Care of Selling Electricity.

Open for offer as New Business Manager, or salesman with central station. Have good travelling salesman experience and would go on road. Age 30, and have had excellent results in present position as contract manager with central station in city of 45,000. Have good executive ability; am good salesman and have a record for "making good." "Business," Care of Selling Electricity.

Wanted—Expert light, power, sign and heating device salesman will be open for proposition August 15. Now managing New Business department in city of 30,000 population. First-class references and good reasons for wishing to change. Have methods of getting business which have never failed to prove satisfactory. "South," Care of Selling Electricity.

Wanted:—In every state an energetic man who has an intelligent idea of the present electric lighting rate conditions in his own state and as to how the continued development in high efficiency lamps is likely to affect them. This is an opportunity for the right kind of men to turn SPECIAL KNOWLEDGE into MONEY without necessarily interfering with present occupation. Development, care Selling Electricity, 74 Cortlandt St., New York City.

Now
Is the Time—
Simplex the Iron

To satisfy your customers—to lead the sale of other devices—to increase the earning capacity. Let us help you tell your customers about the Simplex Electric Household Helps.

Write for Plan K "2."

This Trade Mark

SIMPLEX ELECTRIC QUALITY

Stands for Goods Made on Honor

SIMPLEX ELECTRIC HEATING CO

Cambridge, Mass.

Monadnock Block, Chicago
612 Howard St., San Francisco

SHE doesn't have to call the hired man to move the

Everson Vacuum Cleaner

The only real portable cleaner with a high Effective Vacuum

Weight 35 lbs. List Price $80.00 with 12 Tools.

⅛-H. P. Holtzer-Cabot Motor.
Indestructible Vulcanized Fibre Case, non-conductor of electricity.

Safety valve to prevent damaging motor.

SIMPLE SAFE SUFFICIENT

EVERSON MFG. CO.

34 Oliver Street **Boston, Mass.**

FOR THE

Hot August Evenings

PORCH, LIBRARY, LIVING ROOM

Emeralite Portables

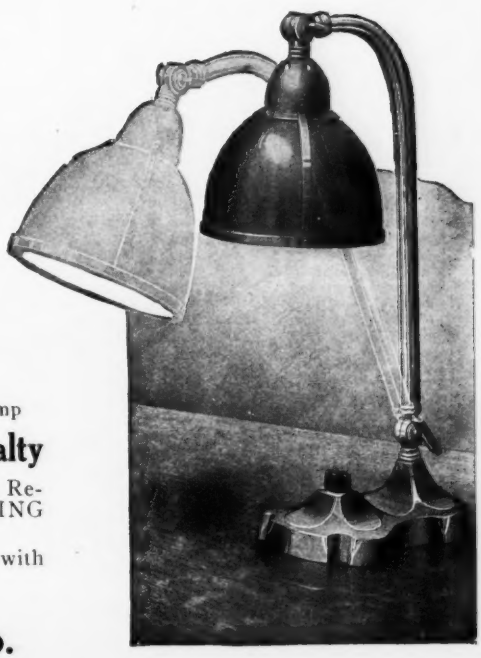
TABLE PIANO WALL

The Cool, Rich, Green Shade makes this Lamp

A Good Warm Weather Specialty

The Clear, Bright Light from the Dustless Reflecting Surface makes it the BEST READING LAMP all the year round.

THE PRICE IS LOW—try selling a few with your flatirons.



H. G. McFaddin & Co.
40 Warren Street, New York

THE CENTRAL STATION DEVELOPMENT COMPANY

ARE EXPERTS
IN THE APPLICATION OF

MODERN COMMERCIALISM
TO
CENTRAL STATION CONDITIONS

"New Business" Departments Created and Maintained

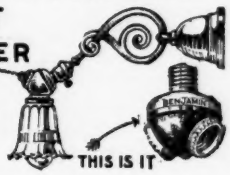
Co-operation Without Competition

Expert Investigation of Central Station Revenue Conditions

Prospectus sent on application

***Address,* Cleveland, Ohio, U.S.A.**

BENJAMIN
TWO-LIGHT PLUG CLUSTER



For Doubling the Capacity of Your Sockets Without Extra Wiring

It just screws in—and the work is done. You have one light, but want two. Or you want to run an extra wire to another point for connecting some electrical appliance — fan, heater, curling-iron, flatiron, chafing dish, etc., and still keep your light burning. *You need not rewire the place to do it.*

Benjamin Plug Cluster Does the Work of Two Sockets.

For sale by all Electrical Dealers or sent postpaid on receipt of price, 75c.

BENJAMIN ELECTRIC MFG. CO.
507 W. Jackson Blvd., Chicago

Combination Pole

Adopted by

LINCOLN NEBRASKA

POUGHKEEPSIE N. Y.

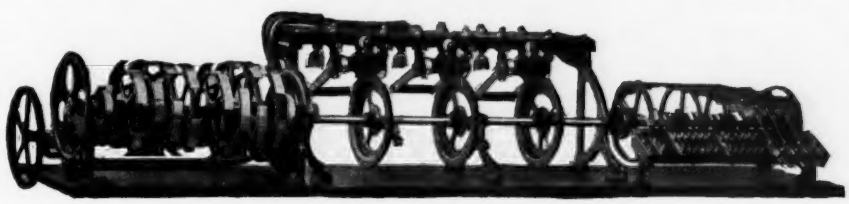
Design 41008

Send for Booklet
Our Product is the Standard

Elmer P. Morris Co.
94 West Street, New York

Flashed Electric Signs

possess a distinction from the steady burning kind that counts immensely in the matter of advertising besides saving from 25 to 40% in light bills.



RECO Flashers

always made strong, durable and trouble-proof, are being constantly improved. Secure Bulletin No. 7. (Approved by the Underwriters.)

Reynolds Electric Flasher Mfg. Co.

Largest Manufacturers of Flashers in the World

New York Office 1123 Broadway

Factory and Main Office, 195 Fifth Ave., Chicago

ELECTRIC TRADE-MARK

NIGHT PHOTOGRAPH

35 feet high, 30 feet wide, star 5 feet; Rays, 15 feet, Z 18 feet
Word zenith in Ruby Lamps; Crescent, Yellow Lamps. Centerpiece of sign built for Marshall Wells Hardware Co., Duluth. Entire sign 100 feet long on top of 10-story building

BUILT BY

THE A. & W. ELECTRIC SIGN CO.

Cleveland, Ohio

Originators, Designers and Builders of Electrical Displays. WRITE FOR DESIGNS and BULLETINS

Charging Electric Cars at Home

has not been possible heretofore to owners owing to the lack of direct current. Now it is different, and that home charging is popular is shown by the great demand for the

W WESTINGHOUSE ELECTRIC

Westinghouse Cooper Hewitt Mercury Rectifier Battery Charging Outfits

What agent or central station man could not sell this outfit with all these points in its favor?

Its Functions—It transforms alternating current at line voltage into direct current at battery voltage, and stops automatically when the charge is complete.

Its Size— It is small enough to be placed in any corner of the garage.

Ease of Operation—Anyone can operate it. Connecting to the car batteries, closing the switch, and turning the starting knob is all the attention necessary.

Economy— Some owners report a saving of more than 50% on the cost of charging alone.

Convenience— Its use means that the electric car is always ready for service to the extent of the maximum capacity of the batteries.

Write our nearest office for literature and agency proposition

WESTINGHOUSE ELECTRIC & MFG. CO. —PITTSBURG, PA.— Sales Offices in All Large Cities

Tungsten Lamp Fragility Overcome

The Westinghouse "Wire Type" Tungsten Lamp Overcomes fragility by employing a single tungsten wire filament held loosely by the intermediate supports, and protected by a flexible connection to the leading-in wires Mechanical tests show that this construction is able to withstand six times as much jar as the ordinary Tungsten lamp.

"Wire Type" is exclusively a Westinghouse feature acknowledged the crowning achievement of Tungsten Lamp manufacture.

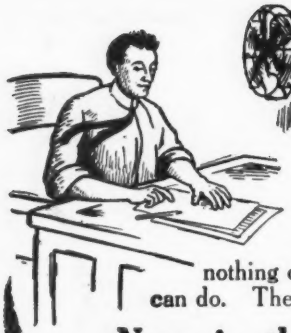
Westinghouse Wire Type Tungsten is the Tungsten lamp of the day, the lamp that the wise buyer specifies.

Send for pamphlet entitled "A New Form of Tungsten Lamp."

Westinghouse Electric & Mfg. Co.

Offices in 40 American cities PITTSBURG, PA.

In writing to advertisers, mention "Selling Electricity."



Which Would You Rather Be?

If you were one of these two men would you change places with the other for a difference of half a cent an hour? The comfort alone is worth many times that amount, to say nothing of the difference it makes with your disposition and the work you can do. The same thing is true of your customers and

Now is the Time to Talk Fort Wayne Fans

Most all electric fans are on a par as far as appearance and guarantees are concerned, but there's a mighty big difference in their performance, and that's just where Fort Wayne Fans are strong.

We make a size and type for *every use* and it will pay you to send for a supply of our free 32-page illustrated booklets and distribute them to your customers.

At least send for a copy for your own use.

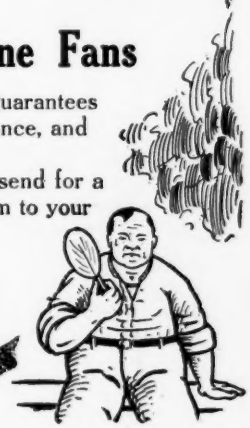
FORT WAYNE ELECTRIC WORKS

"Woods Systems"

1603 Broadway, Fort Wayne, Ind.

Branch offices most large cities

F2



A4574 Old Brass

Williamson Fixtures

Williamson Fixtures represent progress in artistic design and construction, as well as the latest improvements in the lighting art.

Williamson Fixtures are characterized by the highest degree of perfection in workmanship and material known to the industry.

Williamson Facilities include the largest factory of its kind in the world, and more than all, an organization whose one strenuous aim is to satisfy.

R. Williamson & Co.

Manufacturers of

Electric Combination Fixtures and Art Glass Shades

Washington and Jefferson Sts., Chicago, Ill.

Calorite Leaf Unit

Heating Unit Clamped in Base

Shell-Casing

Same with Mica Insulation

Halves of Base

The indestructible Calorite leaf unit, insulated by layers of mica, is securely incased between the two halves of the body (or bottom) piece. This body is then bolted to the shell-casing, making the complete iron.

Complete Iron

Flatirons

Built for Years of Hard Service

Calorite is the most effective material known for transforming electricity into heat in a flatiron. Two years of commercial use have proved it to be practically indestructible—less than $\frac{1}{100}$ of one per cent of burnouts in the unit having occurred.

G-E Irons have a minimum life of 5000 hours, running dry. An iron, even running dry four hours weekly, will therefore last for at least 25 years.

Add the salient features of attractive appearance, efficient and uniform heat distribution, simplicity of design and interchangeability of parts—and you have *the logical iron to "push."*

Hundreds of Thousand in Use

At 10 cents per kilowatt, the annual income from each iron averages from $6 to $10. On this basis the total annual income from all G-E Irons in use is from $3,000,000 to $5,000,000. A thousand G-E Irons on *your* circuits would add from $6,000 to $10,000 to your yearly income. And this is all "velvet."

It is easy to place G-E Irons. Nearly everyone realizes the advantages of an electric iron, but you must crystallize that interest into buying action by giving flatirons a prominent place in your selling plans.

Statistics, covering a period of the last six years, show conclusively that 75% of the G-E Irons put out on trial sell themselves.

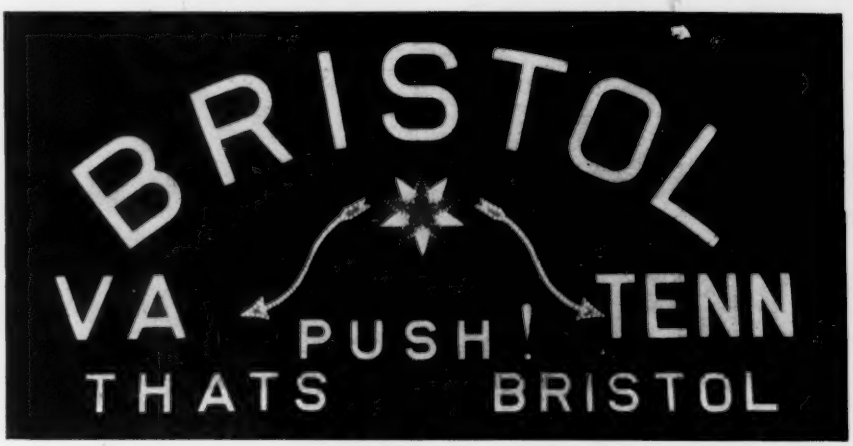
Considering their long period of service, the big returns and the absence of all installation expense, the total cost of placing a 1000 G-E Irons on your circuit is ridiculously low.

Devote a part of your selling organization exclusively to G-E Irons—you will be agreeably surprised at the volume of the profitable returns.

General Electric Company

Largest Electrical Manufacturer in the World

Principal Office: 2578 Schenectady, N. Y.



Sign One Hundred Feet Long
Letters Ten, Five and Three Feet High

The word BRISTOL burns steadily. The double pointed Star in red and white lamps revolves continually, and every few seconds the arrows in red flash in, immediately followed by VA.—TENN. Then, PUSH! spells out one letter at a time, immediately followed by THAT'S BRISTOL, which is in white and green lamps.

This is the second Slogan sign we have built since the St. Louis Convention, and we have quotations out for six other cities.

Mr. Geo. Williams came into our office on June 14th, doped out the Bristol idea and said he wanted this sign up and burning on the evening of July 4th. This is Mr. Williams' way of doing things—"get busy!"

This sign was up and the Mayor of Bristol pulled the switch on the night of July 4th, which is said to have been witnessed by at least ten thousand people, the beginning of a new era for Bristol, a brighter city.

We took five orders in two days the next week, which have since been followed by several others. A great number of merchants have lighted their show windows and are greatly encouraged over the result. "The before and after taking" night picture will show a decided change within a few months—what a wide awake new business department will accomplish for a city in so short a time.

Our work for central stations has proven successful. Let us show you how we can help you get sign business. **Only attractive signs get many others.** Write us for Bulletins, colored designs, or for the assistance of designers and solicitors.

Greenwood Advertising Co.
KNOXVILLE, TENN.

The Tungsten Lamps

In Small Units are Coming with a Rush in a Short Time Now

Are You Ready to Meet the Situation?

Your Loss of Revenue From Lighting Will Soon be a Serious Item Unless You Have Prepared to Face the New Conditions

You Will Need New Business and Plenty of It

The Tungsten Controlled Demand

Rate Will Open Up New and Profitable Fields, Which Up to Now You Have Not Thought Possible or Worth While to Cultivate

A Post Card Today Will Bring You Printed Matter on the Subject and if You Ask for It, a Sample of Our

Demand Limiting Device

With These You Can Perfect Your Plan of Campaign Without Delay

"The old rate scheme, being based upon the lamp efficiency of four watts per candle, becomes a grim joke when we reach an efficiency of close to one watt per candle.

"Consider what it would be if the efficiency were reduced even more; to a half, a quarter, or even a tenth of a watt per candle, which is not at all beyond the realm of possibility."—From *Selling Electricity*, July, 1910—"Fair Play by the Lamp Men."

The Henry Thermo-Electric Co.

3 Scott Avenue, Newport, Vt.

FEDERAL
ELECTRIC COMPANY

A Free Trial

is more convincing than argument. You know that Federal Porcelain Enameled Steel Signs are the best made. Your customer is the man who needs convincing.

In order to give you the opportunity to show him the sign in actual operation we will send to central stations on consignment any of the Federal Standard Sectional Letter Signs listed below:

Drugs	$73.50	Eat	$44.10
Bar	44.10	Buffet	88.20
Cigars	88.29	Shoes	73.50
Cafe	58.80	Hats	58.80
Smoke	73.50	Hotel	73.50

These signs are 16-inch porcelain enameled steel sectional letters double-faced signs, wired multiple, complete with hanging rig, but without lamps.

You can increase your income immensely by a big after-peak sign load. You can easily interest merchants in this trial proposition.

Write us Today for Consignment Proposition

Federal Electric Company

MANUFACTURERS

Lake & Desplaines Streets **Chicago**